# ADVANCE EPHEMERIS

OF

PLANETS' POSITIONS

FOR

ONE HUNDRED YEARS

FROM 1951 TO 2050 A. D.

*Second Edition*

*By*

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**ASTRO-RESEARCH BUREAU**

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# PREFACE

The first edition of the book having gone out of print in a short time, it became necessary to bring out the second edition. While going through the reprinting work, advantage has been taken of correcting the errors of the first edition some of which were communicated by our kind readers. Some suggestions were also received for improvement of the book and clarification or expansion of some items which have been given effect to in this edition as far as possible. In course of giving greater consideration to the scope of such a publication, it became imperative to prepare some new tables of interest and include them in this edition. Of such items mention may be made of the conjunction of planets with Sun, latitude calculation of inferior planets, list of coming *malamasas* and *kshayamasas* etc. The detailed method of calculation of the ending moment of tithi, nakshatra and yoga directly or by using the logarithmic tables is also a long needed addition. Some items of minor importance have however been omitted. An appendix has been included giving in short the basis of calculation and also showing how the present tables can be made use of in finding the planets' places for any year during the period from 500 years back to 500 years forward without much difficulty This has rendered the present publication for 100 years to serve the purpose of thousand years' ephemeris.

Unlike the first edition, many examples almost on every intricate calculation have been given in this edition mainly to help the new entrants into the subject. Many students are in need of the values of different terms of the lunar equation by which the mean moon is corrected to get the true moon. For their facility the principal terms of the equation down to that of 2′ magnitude have been given in the appendix. The author will deem his labours rewarded if the materials provided and subjects dealt with in the book are found useful by the readers and also if these can infuse in them a spirit of further work in the line.

We cannot avoid mentioning at the end that the present high price of paper and increasing cost of printing etc., combined with an increase in the volume of the book have compelled us to raise the price of this revised edition.

**Calcutta**
20 **February, 1972**
( 1 **Phalguna, 1893 S.E.** )

N. C. LAHIRI

# PREFACE TO THE FIRST EDITION

Those who are interested in planetary positions very often want to know the positions of a particular planet or of all the planets on some future dates for which ephemerides are not available at that time. For this purpose very precise values of longitudes are however not necessary. In order to meet this end, the present endeavour has been made to furnish the longitudes of all the planets, both ancient and modern planets, for the period of one hundred years from 1951 to 2050 A.D. The longitudes given or derivable from this book are *Nirayana i.e.* according to the Indian system, but are calculated on the basis of modern astronomy and are given in *Rāśis* ( nirayana signs ), degrees and minutes or decimals of a degree. When the figure for *rasi* is zero, the planet is in Meṣa and so on The *Sayana* or tropical longitude may as usual be obtained by adding *ayanamsa* to the nirayana longitude.

The longitude of Sun has been calculated from the author's *Tables of the Sun* and the given figures are correct to a minute. For the Moon the true longitude is to be derived from the mean longitude by applying a few corrections based on anomaly and tithi and the result would be obtained correct within 12 minutes of arc. Here Anomaly is mean moon *minus* lunar perigee, and Tithi is mean moon *minus* mean sun. The positions of the inferior planets Mercury and Venus, which are to be obtained from the true longitude of the Sun for the day by applying the elongation derived from the 'Days from conjuntion with Sun', are correct within a degree. The longitudes of other planets are correct within a fraction of a degree.

A new table on Sāvana Calendar has been given in this book in order to facilitate fixing the date of ending of a dasā period which is based on the Savana year of 360 days. This table would also serve the purpose of determining the number of civil days since the beginning of the Kaliyuga. A note on Indian Calendars has been given at the beginning of the book to help finding the corresponding dates of any of the regional calendars of India calculated on modern methods.

As the calculation involved in the preparation of such a book is enormous, the work which was started in 1959 could not be completed much earlier. The author would consider his labours amply rewarded if the readers can derive some benefit from this book.

17, Brindaban Mullick 1st Lane
Calcutta-9
1st January, 1968

N. C. LAHIRI

## CONTENTS

## SYMBOLS

| | | |
|---|---|---|
| ☉ | Sun | *Ravi, Surya* |
| ☽ | Moon | *Chandra* |
| ☿ | Mercury | *Budha* |
| ♀ | Venus | *Śukra, Bhṛgu* |
| ♂ | Mars | *Maṅgala, Kuja* |
| ♃ | Jupiter | *Bṛhaspati, Guru* |
| ♄ | Saturn | *Śani* |
| ♅ | Uranus or Herschel | *Indra, Prajāpati* |
| ♆ | Neptune | *Varuṇa* |
| ♇ | Pluto | *Rudra, Yama* |
| ☊ | Ascending Node or Dragon's head | *Rāhu* |
| ☋ | D. Node, Dragon's tail | *Ketu* |
| ⊕ | Earth | *Pṛthivī* |

| | | |
|---|---|---|
| ♈ | Aries | 0 *Meṣa* |
| ♉ | Taurus | 1 *Vṛṣa* |
| ♊ | Gemini | 2 *Mithuna* |
| ♋ | Cancer | 3 *Karkaṭa* |
| ♌ | Leo | 4 *Siṁha* |
| ♍ | Virgo | 5 *Kanyā* |
| ♎ | Libra | 6 *Tulā* |
| ♏ | Scorpio | 7 *Vṛścika* |
| ♐ | Sagittarius | 8 *Dhanus* |
| ♑ | Capricornus | 9 *Makara* |
| ♒ | Aquarius | 10 *Kumbha* |
| ♓ | Pisces | 11 *Mīna* |

## ERRATA

| Page | | *For* | *Read* |
|---|---|---|---|
| 22 | Mean Moon, 1993, May 0 | 2s 27° 6′ | 3s 27° 6′ |
| 62 | Tab. VIII, For Anomaly— Arg. 6 | 12° 2′ | 12° 23′ |
| | 7 | 12 0 | 12 05 |
| 84 | 1951, Mesha | Apr. 14d 3·2h | 14d 3·9h |
| 88 | 1951, Time | Dec. 18 15·8 | 28 15·8 |

# INTRODUCTION

## INDIAN CALENDAR

The calendar used in this book is the English or the Gregorian calendar. When the year (A.D.) of this calendar is divisible by 4, it becomes a leap-year and then February gets 29 days. But the century years 1700, 1800, 1900, 2100 A.D. etc. are not leap-years, while 1600, 2000, 2400 A.D. which are divisible by 400 are leap-years.

### THE NATIONAL CALENDAR

In the National Calendar of India, the Saka era is used. When the Sake year divided by 4 leaves a remainder of 2 it becomes a leap year, and then Chaitra the first month of the year gets 31 days instead of its normal duration of 30 days. The year begins on Mar. 22 in a common year and on Mar. 21 in a leap-year.

Saka year + 78 = A.D. year ( Mar. to Dec. )

Saka year + 79 = A.D. year ( Jan. to Mar. )

The subsequent months of this calendar have got fixed number of days and they also begin on fixed dates of the English calendar as stated below : Vaisakha (31) begins on Apr. 21, Jyaistha (31) on May 22, Asadha ( 31 ) on June 22, Sravana ( 31 ) on July 23, Bhadra ( 31 ) on Aug. 23, Asvina (30) on Sept. 23, Kartika (30) on Oct. 23, Agrahayana (30) on Nov. 22, Pausa (30) on Dec 22, Magha (30) on Jan. 21 and Phalguna (30) on Feb. 20.

### OTHER SOLAR CALENDARS

The year of the Bengali calendar (Bengali San or B.S.) begins on April 14-15 and the first month is Vaisakha.

Bengali year + 593 = A.D. year ( Apr. to Dec. )

Bengali year + 594 = A.D. year ( Jan. to Apr. )

The months of this calendar, like all other indigenous calendars, have got variable number of days and the beginning dates of months also vary from year to year as shown below : Vaisakha (30-31) begins on Apr. 14-15, Jyaistha (31-32) on May 15-16, Asadha (31-32) on June 15-16, Sravana (31-32) on July 17-18, Bhadra (31+) on Aug. 17-18, Asvina (30-31) on Sept. 17-18, Kartika (30−) on Oct. 17-18, Agrahayana (29-30) on Nov. 16-17, Pausa (29-30) on Dec. 16-17, Magha (29-30) on Jan. 14-15, Phalguna (29-30) on Feb. 13-14, and Chaitra (30-31) on Mar. 15-16. The calendar of Assam is the same as that of Bengal. The Saka era used with the Bengali calendar starts from solar Vaisakha.

The year of the regional calendar of Kerala begins on August 16- and the first month is Simha corresponding to the above mentior month of Bhadra. The era used is Kollam era.

Kollam era + 824 = A.D. year ( Aug. to Dec. )

Kollam era + 825 = A.D. year ( Jan. to Aug. )

The lengths of months of this calendar are of the same order as the Bengali calendar but the months begin generally one day earlier sometimes on the same day.

Similarly the years of the Tamilian calendar, Oriya calendar and t Punjabi solar calendar begin on April 13-14, corresponding to Vaisak of the Bengali calendar or Mesham of the Keralian. The twelve mont of the Tamilian calendar are Chittirai, Vaikasi, Ani, Adi, Avani, Pur tasi, Arppisi, Karthigai, Margali, Thai, Masi and Panguni correspondi to Vaisakha to Chaitra of the Bengali calendar. The names of mont of the Keralian calendar are the same as of the Indian *Rasis* ( or sign starting from Simha. The months of all these calendars are also almo of the same length as those of the Bengali calendar. The months the Tamilian calendar begin one day earlier or sometimes on the san day while those of the Oriya and Punjabi calendars begin one or tv days earlier than the months of the Bengali calendar.

The Jovian year or the Bārhaspatya Varsha of South India, cor mencing from Prabhava which are 60 in number, is used as the era wi the Tamilian calendar, the year of which begins on April 13-14. Th Jovian year is also used with the Telugu calendar and the Mysora calendar, the months of which are luni-solar and the year begins wi Lunar Chaitra after the new-moon day falling between March 14 ar April 13-14. The Saka era starting from lunar Chaitra is also used a the era in these areas and also in Maharashtra. The names of the Jovia years from 1927 to 2046 A.D. which begin in March-April accordir to the South Indian usage are stated below :

| Varşa | yr. | yr. | Varşa | yr. | yr. | Varşa | yr. | y |
|---|---|---|---|---|---|---|---|---|
| 1. Prabhava | 1927 | 1987 | 21. Sarvajit | 1947 | 2007 | 41. Plavanga | 1967 | 20 |
| 2. Vibhava | 28 | 88 | 22. Sarvadhārin | 48 | 08 | 42. Kilaka | 68 | 2 |
| 3. Sukla | 29 | 89 | 23. Virodhin | 49 | 09 | 43. Saumya | 69 | 2 |
| 4. Pramoda | 1930 | 1990 | 24. Vikrita | 1950 | 2010 | 44. Sādhārana | 1970 | 20 |
| 5. Prajāpati | 31 | 91 | 25. Khara | 51 | 11 | 45. Virodhakrit | 71 | 3 |
| 6. Angiras | 32 | 92 | 26. Nandana | 52 | 12 | 46. Paridhāvin | 72 | 3 |
| 7. Srimukha | 33 | 93 | 27. Vijaya | 53 | 13 | 47. Pramādin | 73 | 3 |
| 8. Bhava | 34 | 94 | 28. Jaya | 54 | 14 | 48. Ananda | 74 | 3 |
| 9. Yuvan | 35 | 95 | 29. Manmatha | 55 | 15 | 49. Rākshasa | 75 | 3 |
| 10. Dhātri | 36 | 96 | 30. Durmukha | 56 | 16 | 50. Anala (Nala) | 76 | 3 |
| 11. Isvara | 37 | 97 | 31. Hemalamba | 57 | 17 | 51. Pingala | 77 | 3 |
| 12. Bahudhānya | 38 | 98 | 32. Vilamba | 58 | 18 | 52. Kālayukta | 78 | 3 |
| 13. Pramāthin | 39 | 99 | 33. Vikārin | 59 | 19 | 53. Siddhārthin | 79 | 3 |
| 14. Vikrama | 1940 | 2000 | 34. Sarvari | 1960 | 2020 | 54. Raudra | 1980 | 204 |
| 15. Vrisha | 41 | 01 | 35. Plava | 61 | 21 | 55. Durmati | 81 | 4 |
| 16. Chitrabhānu | 42 | 02 | 36. Subhakrit | 62 | 22 | 56. Dundubhi | 82 | 4 |
| 17. Subhānu | 43 | 03 | 37. Sobhana | 63 | 23 | 57. Rudhirodgāri | 83 | 4 |
| 18. Tārana | 44 | 04 | 38. Krodhin | 64 | 24 | 58. Raktāksha | 84 | 4 |
| 19. Pārthiva | 45 | 05 | 39. Visvāvasu | 65 | 25 | 59. Krodhana | 85 | 4 |
| 20. Vyaya | 1946 | 2006 | 40. Parābhava | 1966 | 2026 | 60. Kshaya (Akshaya) | 1986 | 204 |

In order to determine the exact date of beginning of the months of the solar calendars of different States, first calculate the time of Samkranti or Nirayana transit of the Sun using the tables given on page 84 for the year in question. When the transit time occurs before midnight the *last day* of the preceding month of the Bengali calendar falls on that day, and when it is after midnight then it falls on the next day; and the new month begins on the day after. In other States the *first day* of the month ( and not the last day ) is determined according to the transit time. Fort his purpose the sunset rule is observed in Tamil Nadu, 18-ghatika rule in Kerala and sunrise rule in Orissa and Punjab. When the transit time occurs before the above mentioned epochs for the capital cities of the respective States, then the month begins on that very day, if after then on the next day. In Orissa and Punjab the first day of the month falls on the day of transit (sunrise to next sunrise ). The above mentioned critical hours for different States are given below ( in I.S.T ) for the dates of different solar transits. It may however be mentioned here that in the Bengal rule some complications arise when the transit occurs within the 2-ghatika period covering midnight.

| Rasi and Date | | Sunrise (Bhubaneswar) | | Sunrise (Delhi) | | 18 ghatika (Trivandrum) | | Sunset (Madras) | | Midnight (Calcutta) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | h | m | h | m | h | m | h | m | h | m |
| Mesha | Apr. 13-14 | 5 | 30 | 5 | 58 | 13 | 26 | 18 | 21 | 23 | 37 |
| Vrisha | May 14-15 | 5 | 11 | 5 | 31 | 13 | 16 | 18 | 27 | 23 | 33 |
| Mithuna | June 14-15 | 5 | 06 | 5 | 23 | 13 | 16 | 18 | 36 | 23 | 37 |
| Karkata | July 16-17 | 5 | 16 | 5 | 34 | 13 | 23 | 18 | 39 | 23 | 42 |
| Simha | Aug. 16-17 | 5 | 27 | 5 | 51 | 13 | 27 | 18 | 29 | 23 | 41 |
| Kanya | Sept. 16-17 | 5 | 34 | 6 | 07 | 13 | 24 | 18 | 09 | 23 | 31 |
| Tula | Oct. 16-17 | 5 | 42 | 6 | 23 | 13 | 22 | 17 | 49 | 23 | 22 |
| Vrischika | Nov. 15-16 | 5 | 57 | 6 | 45 | 13 | 27 | 17 | 39 | 23 | 21 |
| Dhanus | Dec. 15-16 | 6 | 15 | 7 | 07 | 13 | 40 | 17 | 45 | 23 | 32 |
| Makara | Jan. 13-14 | 6 | 25 | 7 | 16 | 13 | 52 | 18 | 00 | 23 | 45 |
| Kumbha | Feb. 12-13 | 6 | 19 | 7 | 03 | 13 | 54 | 18 | 14 | 23 | 51 |
| Mina | Mar. 14-15 | 5 | 57 | 6 | 32 | 13 | 42 | 18 | 19 | 23 | 46 |

## LUNAR CALENDARS

The solar months like Vaisakha, Jyaistha, etc. actually begin from the moment of Samkranti or solar transit into Nirayana Rasis like Mesha, Vrisha, etc. The lunar months which have also got the same names begin from the moment of new moon ( Amavasya ) occurring after the above transit time and before the next transit. The day next to Amavasya is the first day of the month. This is according to the new-moon ending or *Sukladi* system or the *Mukhya māna*, as prevalent in Maharashtra, Gujarat, Andhra Pradesh, and Mysore. These months have got two halves, the Sukla Paksha and the Krishna Paksha. When however two new moon ending lunar months begin within a solar month, then the second month is termed as *suddha* or real and the first

one is *adhika* or *mala** of the same name. The era used with these lunar months ( except in Gujarat ) is the Saka era named there as Salivahana Saka, and the year begins with Chaitra sukla pratipad. In Gujarat, however, the Samvat era is used and the year begins there with Kartika sukla pratipad occurring between Oct 17-18 to Nov. 15-16.

Kartikadi Samvat – 57 = A.D. year ( Oct. to Dec. )

" Samvat—56 = A.D. year ( Jan. to Oct. )

In North India also ( in all States except Bengal and Assam ) the lunar calendar is used, but there the months are full-moon ending i.e. *Krishnadi* or *Gauna* beginning from the day after full-moon (Purnima) about 15 days before the beginning of months of the same name of the above mentioned Sukladi system. Here also the months have got two halves, first Krishna paksha or *Vadi* half and then Sukla paksha or *Sudi* half. The Krishna paksha of the Mukhya mana and the Vadi half of Gaunamana are related in the following way—Chaitra Krishna is equivalent to Vaisakha Vadi, then comes Vaisakha Sukla corresponding to Vaisakha Sudi, followed by Vaisakha Krishna corresponding to Jyaistha Vadi, and so on. The Vikram Samvat is used with this calendar and the year begins in the middle of the month of Gauna Chaitra i.e. from Chaitra Sukla pratipad occurring between March 15-16 and April 13-14.

Chaitradi Samvat—57 = A.D year ( Mar. to Dec. )

" Samvat—56 = A.D. year ( Jan. to Mar. )

When the date is given in terms of any of the above mentioned calendars the same may be converted into the corresponding date of the English calendar by the above rules.

## Kaliyuga Era

The Kaliyuga era is measured by the number of years elapsed since 3102 B.C., Feb. 17-18 midnight ( Ujjain ) when the mean sun of the Surya-Siddhanta became zero. We may therefore take the time of Mean Sun as affected by Bija correction entering Mesha as the beginning moment of the Kalivuga era. This transit time is given below in I.S.T. for the four basic years.

| 1951 | 1952 | 1953 | 1954 |
|---|---|---|---|
| d h | d h | d h | d h |
| Apr. 16 1·6 | Apr. 15 7·8 | Apr. 15 13·9 | Apr. 15 20·1 |

The transit time for other years may be obtained by applying the 'Correction for other years' given on page 84. It may be noted that

* A list of malamāsas from 1913 to 2026 A.D. has been given on page 92.

**we can also get the above time by adding 1*d* 21·7*h* to the transit time of True Sun into Mesha as obtained from the table on the same page.**

Kaliyuga era − 3101 = A.D. year ( Apr. to Dec. )

Kaliyuga era − 3100 = A.D. year ( Jan, to Apr. )

## Barhaspatya Varsha of North India

In North India also there are 60 Jovian years with the same name as in the South starting from Prabhava as No. 1. But here the years are determined by the entry of Jupiter ( Brihaspati ) by mean motion into different Rasis beginning from Kumbha. The length of the Jovian year of North Indian usage is 361*d* 1·18*h*, and of the South Indian usage is equal to that of the mean sidereal year i.e. 365*d* 6·15*h* The beginning dates of the Jovian years of North India for the years 1950 to 2044 A.D. are given below

| Varṣa No. | Begins on | Varṣa No | Begins on | Varṣa No. | Begins on | Varṣa No. | Begins on |
|---|---|---|---|---|---|---|---|
| 37 | 1950 Mar. 25 | 1 | 1973 Dec. 15 | 25 | 1997 Sept. 5 | 49 | 2021 May 27 |
| 38 | 51 Mar. 22* | 2 | 74 Dec. 11 | 26 | 98 Sept. 1 | 50 | 22 May 23 |
| 39 | 52 Mar. 17 | 3 | 75 Dec. 7 | 27 | 1999 Aug. 28 | 51 | 23 May 19 |
| 40 | 53 Mar. 13 | 4 | 76 Dec. 2 | 28 | 2000 Aug. 23 | 52 | 24 May 14 |
| 41 | 54 Mar. 9 | 5 | 77 Nov. 28 | 29 | 01 Aug. 19 | 53 | 25 May 10 |
| 42 | 55 Mar. 5 | 6 | 78 Nov. 24 | 30 | 02 Aug. 15 | 54 | 26 May 6 |
| 43 | 56 Feb. 29 | 7 | 79 Nov. 20 | 31 | 03 Aug. 11 | 55 | 27 May 2 |
| 44 | 57 Feb. 24 | 8 | 1980 Nov. 15 | 32 | 04 Aug. 6 | 56 | 28 Apr. 27 |
| 45 | 58 Feb. 20 | 9 | 81 Nov. 11 | 33 | 05 Aug. 2 | 57 | 29 Apr. 23 |
| 46 | 59 Feb. 16 | 10 | 82 Nov. 7 | 34 | 06 July 29 | 58 | 2030 Apr. 19 |
| 47 | 1960 Feb. 12 | 11 | 83 Nov. 3 | 35 | 07 July 25 | 59 | 31 Apr. 16* |
| 48 | 1961 Feb. 7 | 12 | 1984 Oct 29 | 36 | 2008 July 20 | 60 | 2032 Apr. 11 |
| 49 | 1962 Feb. 3 | 13 | 1985 Oct. 25 | 37 | 2009 July 16 | 1 | 2033 Apr. 7 |
| 50 | 63 Jan. 30 | 14 | 86 Oct. 21 | 38 | 2010 July 12 | 2 | 34 Apr. 3 |
| 51 | 64 Jan. 26 | 15 | 87 Oct. 17 | 39 | 11 July 9* | 3 | 35 Mar. 30 |
| 52 | 65 Jan. 21 | 16 | 88 Oct. 12 | 40 | 12 July 4 | 4 | 36 Mar. 25 |
| 53 | 66 Jan. 17 | 17 | 89 Oct. 8 | 41 | 13 June 30 | 5 | 37 Mar. 21 |
| 54 | 67 Jan. 13 | 18 | 1990 Oct. 5* | 42 | 14 June 26 | 6 | 38 Mar. 17 |
| 55 | 68 Jan. 9 | 19 | 91 Oct. 1 | 43 | 15 June 22 | 7 | 39 Mar. 13 |
| 56 | 69 Jan. 4 | 20 | 92 Sept. 26 | 44 | 16 June 17 | 8 | 2040 Mar. 8 |
| 57 | 69 Dec. 31 | 21 | 93 Sept. 22 | 45 | 17 June 13 | 9 | 41 Mar. 4 |
| 58 | 1970 Dec. 28* | 22 | 94 Sept. 18 | 46 | 18 June 9 | 10 | 42 Feb. 28 |
| 59 | 71 Dec. 24 | 23 | 95 Sept. 14 | 47 | 19 June 5 | 11 | 43 Feb. 24 |
| 60 | 1972 Dec. 19 | 24 | 1996 Sept. 9 | 48 | 2020 May 31 | 12 | 2044 Feb. 20 |

N.B.—(1) The day has been reckoned from 0*h* (mid-night) I.S.T.

(2) In 86 civil years there are 87 Bārhaspatya Varṣas.

(3) Varṣa Nos. 1 Prabhava, 13 Pramathin. 25 Khara, 37 Sobhana and 49 Rākshasa begin with the entry of Jupiter into Kumbha by mean motion. Originally the Kumbha Mela used to occur in these years as determined by mean motion, but now the true position of the planet is taken into account.

* The time after the date is 0*h* I.S.T. in these years. Thereafter time increases by 1·2*h* per year.

## Example

(The results are compared with the longitudes as given in LAHIRI'S *Indian Ephemeris* abbreviated as I.E. )

(A) Find the longitudes of the Sun, Moon and Rahu on the 4th Oct. 1968 at 5-30 A.M. I.S.T.

| | True Sun | Mean Moon | Moon's Anomaly | Tithi | Rahu |
|---|---|---|---|---|---|
| | s ° ' | s ° ' | | | s ° |
| ( Pages 10-11 ) 1968 Oct. 0 | 5 13 28 | 8 19 45 | 2·63 | 7·863 | 11 16·1 |
| ( P. 54 *et seq* ) Days 4 | 3 56 | 1 22 42 | 4·36 | 4·064 | – 0·2 |
| | 5 17 24 | 10 12 27 | 6·99 | 11·927 | 11 15·9 |
| | (I.E. 5 17 24) | | | | (I.E. 11 15·9) |

| | | | |
|---|---|---|---|
| Corrections to Moon | (p. 57 *et seq.*) | Tab. I (Ano.) | +6° 17′ |
| | | „ II (Ti.) | −0 39 |
| | Tab. III (2T. - Ano. = 16·86) | ... | −0 29 |
| | „ IV (Oct. 4) | ... | +0 11 |
| | „ V ( Moon - Rahu = 10s 27° ) | | +0 6 |
| | | | +5 26 |
| | | Mean Moon | 10 12 27 |
| | | ∴ True Moon | 10 17 53 |
| | | (I.E. | 10 17 56) |

(B) Longitudes of Mercury and Venus on the same day.

| | | Mercury | Venus |
|---|---|---|---|
| (P. 10) Days from conj. | (1968, Oct. 0) | 47·3 | 103·3 |
| | Days 4 | 4·0 | 4·0 |
| | | 51·3 | 107·3 |
| Elongation from Sun (pp. 66-69) | | +20·1 * | +28·0 |
| | True Sun | 5 17·4 | 5 17·4 |
| | ∴ True Planet | 6 07·5 | 6 15·4 |
| | ( I.E. | 6 07·8 | 6 15·5 ) |

( * From pages 64 and 65 the correction is obtained as +20°·6 and the true longitude of Mercury is derived as 6s 08°·0 )

(C) Longitude of Mars on the same day of 1968.

Long. of Mars ( p. 11 ) Oct. 0 = 4s 11°·8, Oct. 15 = 4s 21°·1

∴ Motion in 15 days = +9°·3

( P. 72 ) Corrected day = 4·0 ∴ Movement for 4 days = +2·5

Oct. 0 = 4 11·8

∴ Mars on Oct. 4 = 4 14·3

( I.E. 4 14·2 )

# ADVANCE EPHEMERIS

## FOR HUNDRED YEARS

### From 1951 to 2050 A.D.

| | | | | |
|---|---|---|---|---|
| Saka Era from | 1872-73 | to | 1971-72 |
| Samvat Era | „ | 2007-08 | „ | 2106-07 |
| Bengali San | „ | 1357-58 | „ | 1456-57 |
| Kollam Era | „ | 1126-27 | „ | 1225-26 |

*Given for 5-30 **A.M.** Indian Standard Time or $0^h$ Greenwich Mean Time (Greenwich midnight).*

The longitudes given are for the zero-date of the month. January 0 means the day before January 1 (i.e. 31 December of the previous year), Feb. 0 is the day before Feb. 1 (i.e. Jan. 31) and so on.

The longitudes of the Sun, Moon and planets are all *Nirayana* or sidereal. To obtain the *Sayana* or tropical longitude, the amount of *Ayanamsa* for the year as given on page 52 is to be added to them. The ayanamsa varies from 23° 10′ to 24° 33′ during the period.

The true longitude of the Sun and of planets (Mars to Pluto) and the mean longitude of the Moon together with that of Rahu (Moon's Node) are given for the zero-date of each month at 5-30 A.M. The longitude of Mars is given twice i.e. for the zero-date as well as for the 15th of the month.

As regards Moon, in addition to its mean longitude, the Mean Anomaly (mean moon - perigee) and the Mean Tithi (mean moon - mean sun) are given. These are in units of 12° and so their period is 30. From tables given at the end, corrections due to anomaly, tithi, etc. are to be taken and applied to the mean moon to get the true longitude of the Moon for the day.

In the case of Mercury and Venus, the number of days elapsed since the last conjunction (conj. of mean planet with the mean sun) are given. Corrections are to be taken against these 'Days from Conjunction' and applied to the true Sun for the day to get the true longitude of these planets.

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1951** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Sun. | 8 15 34 | 5 7 25 | 24·27 | 21·811 | 53·4 | 43·4 |
| Feb. 0 | Wed. | 9 17 7 | 6 25 53 | 28·02 | 23·303 | 84·4 | 74·4 |
| Mar. 0 | Wed. | 10 15 25 | 7 4 49 | 28·50 | 21·748 | 112·4 | 102·4 |
| Apr. 0 | Sat. | 11 16 18 | 8 23 17 | 2·25 | 23·241 | 27·6 | 133·4 |
| May 0 | Mon. | 0 15 40 | 9 28 33 | 4·92 | 23·718 | 57·6 | 163·4 |
| June 0 | Thur. | 1 15 34 | 9 17 1 | 8·67 | 25·211 | 88·6 | 194·4 |
| July 0 | Sat. | 2 14 14 | 0 22 20 | 11·33 | 25·688 | 2·7 | 224·4 |
| Aug. 0 | Tues. | 3 13 49 | 2 10 48 | 15·08 | 27·180 | 33·7 | 255·4 |
| Sept. 0 | Fri. | 4 13 36 | 3 29 16 | 18·83 | 28·673 | 64·7 | 286·4 |
| Oct. 0 | Sun. | 5 12 50 | 5 4 32 | 21·50 | 29·150 | 94·7 | 316·4 |
| Nov. 0 | Wed. | 6 13 34 | 6 23 0 | 25·25 | 0·643 | 9 8 | 347·4 |
| Dec. 0 | Fri. | 7 13 47 | 7 28 19 | 27·91 | 1·120 | 39·8 | 377·4 |
| **1952** | | | | | | | |
| Jan. 0 | Mon. | 8 15 18 | 9 16 47 | 1·66 | 2·613 | 70·8 | 408·4 |
| Feb. 0 | Thur. | 9 16 52 | 11 5 15 | 5·41 | 4·105 | 101·8 | 439·4 |
| Mar. 0 | Fri. | 10 16 10 | 11 27 22 | 6·98 | 3·566 | 14·9 | 468·4 |
| Apr. 0 | Mon. | 11 17 2 | 1 15 50 | 10·74 | 5·059 | 45·9 | 499·4 |
| May 0 | Wed. | 0 16 24 | 2 21 6 | 13·40 | 5·536 | 75·9 | 529 4 |
| June 0 | Sat. | 1 16 17 | 4 9 34 | 17·75 | 7·029 | 106·9 | 560·4 |
| July 0 | Mon. | 2 14 57 | 5 14 53 | 19·81 | 7·506 | 21·0 | 6·5 |
| Aug. 0 | Thur. | 3 14 31 | 7 3 21 | 23·56 | 8·998 | 52·0 | 37 5 |
| Sept. 0 | Sun. | 4 14 19 | 8 21 49 | 27·31 | 10·491 | 83·0 | 68·5 |
| Oct. 0 | Tues. | 5 13 34 | 9 27 5 | 29·98 | 10·968 | 113·0 | 98·5 |
| Nov. 0 | Fri. | 6 14 19 | 9 15 33 | 3·73 | 12·461 | 28·2 | 129 5 |
| Dec. 0 | Sun. | 7 14 32 | 0 20 52 | 6 39 | 12·938 | 58·2 | 159·5 |
| **1953** | | | | | | | |
| Jan. 0 | Wed. | 8 16 4 | 2 9 20 | 10·14 | 14·430 | 89·2 | 190·5 |
| Feb. 0 | Sat. | 9 17 37 | 3 27 48 | 13·89 | 15·923 | 4·3 | 221·5 |
| Mar. 0 | Sat. | 10 15 54 | 4 6 44 | 14·38 | 14·368 | 32·3 | 249·5 |
| Apr. 0 | Tues. | 11 16 46 | 5 25 12 | 18·13 | 15·861 | 63·3 | 280·5 |
| May 0 | Thur. | 0 16 8 | 7 0 28 | 20·79 | 16·338 | 93·3 | 310·5 |
| June 0 | Sun. | 1 16 2 | 8 18 57 | 24·54 | 17·831 | 8 4 | 341·5 |
| July 0 | Tues. | 2 14 42 | 9 24 15 | 27·21 | 18·308 | 38·4 | 371·5 |
| Aug. 0 | Fri. | 3 14 16 | 11 12 43 | 0·96 | 19·800 | 69·4 | 402·5 |
| Sept. 0 | Mon. | 4 14 4 | 1 1 11 | 4·71 | 21·293 | 100·4 | 433·5 |
| Oct. 0 | Wed. | 5 13 19 | 2 6 27 | 7·37 | 21·770 | 14·5 | 463·5 |
| Nov. 0 | Sat. | 6 14 3 | 3 24 55 | 11·12 | 23·263 | 45·5 | 494·5 |
| Dec. 0 | Mon. | 7 14 16 | 5 0 14 | 13·78 | 23·740 | 75·5 | 524·5 |
| **1954** | | | | | | | |
| Jan. 0 | Thur. | 8 15 48 | 6 18 42 | 17·54 | 25·232 | 106·5 | 555·5 |
| Feb. 0 | Sun. | 9 17 21 | 8 7 10 | 21·29 | 26·725 | 21·7 | 2·5 |
| Mar. 0 | Sun. | 10 15 38 | 8 16 5 | 21·77 | 25·170 | 49·7 | 30·5 |
| Apr. 0 | Wed. | 11 16 31 | 10 4 34 | 25·52 | 26·663 | 80·7 | 61·5 |
| May 0 | Fri. | 0 15 53 | 11 9 52 | 28·19 | 27·140 | 110·7 | 91·5 |
| June 0 | Mon. | 1 15 47 | 0 28 20 | 1·94 | 28·633 | 25·8 | 122·5 |
| July 0 | Wed. | 2 14 27 | 2 3 36 | 4·60 | 29·109 | 55·8 | 152·5 |
| Aug. 0 | Sat. | 3 14 2 | 3 22 4 | 8·35 | 0·602 | 86·8 | 183·5 |
| Sept. 0 | Tues. | 4 13 50 | 5 10 32 | 12·10 | 2·095 | 1·9 | 214·5 |
| Oct. 0 | Thur. | 5 13 4 | 6 15 51 | 14·76 | 2·572 | 31·9 | 244·5 |
| Nov. 0 | Sun. | 6 13 48 | 8 4 19 | 18·52 | 4·065 | 62·9 | 275·5 |
| Dec. 0 | Tues. | 7 14 1 | 9 9 35 | 21·18 | 4·542 | 92·9 | 305·5 |
| Dec. 31 | Fri. | 8 15 32 | 10 28 4 | 24·93 | 6·034 | 8·0 | 336·5 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1951** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 9 19·1 | 10 0·9 | 10 11·3 | 5 9·1 | 2 14·2 | 5 26·3 | 3 26·3 | 10 29·7 |
| Feb. 0 | 10 13·5 | 10 25·2 | 10 17·8 | 5 8·9 | 2 13·0 | 5 26·3 | 3 25·6 | 10 28·0 |
| Mar. 0 | 11 5·4 | 11 16·9 | 10 24·3 | 5 7·4 | 2 12·3 | 5 26·0 | 3 25·0 | 10 26·5 |
| Apr. 0 | 11 29·0 | 0 10·3 | 11 1·8 | 5 5·0 | 2 12·4 | 5 25·2 | 3 24·4 | 10 24·9 |
| May 0 | 0 21·3 | 1 2·1 | 11 8·7 | 5 3·1 | 2 13·2 | 5 24·4 | 3 24·2 | 10 23·3 |
| June 0 | 1 13·4 | 1 23·9 | 11 14·8 | 5 2·4 | 2 14·6 | 5 23·8 | 3 24·5 | 10 21·7 |
| July 0 | 2 4·1 | 2 14·2 | 11 19·0 | 5 3·2 | 2 16·4 | 5 23·6 | 3 25·1 | 10 20·1 |
| Aug. 0 | 2 24·8 | 3 4·6 | 11 21·0 | 5 5·5 | 2 18·2 | 5 23·9 | 3 25·9 | 10 18·4 |
| Sept. 0 | 3 14·9 | 3 24·4 | 11 19·8 | 5 8·7 | 2 19·7 | 5 24·6 | 3 26·9 | 10 16·8 |
| Oct. 0 | 4 3·7 | 4 12·9 | 11 16·4 | 5 12·4 | 2 20·6 | 5 25·6 | 3 27·7 | 10 15·2 |
| Nov. 0 | 4 22·6 | 5 1·5 | 11 12·6 | 5 16·1 | 2 20·8 | 5 26·7 | 3 28·2 | 10 13·6 |
| Dec. 0 | 5 10·1 | 5 18·5 | 11 11·1 | 5 19·2 | 2 20·1 | 5 27·7 | 3 28·4 | 10 12·0 |
| **1952** | | | | | | | | |
| Jan. 0 | 5 27·0 | 6 4·4 | 11 12·7 | 5 21·3 | 2 18·9 | 5 28·4 | 3 28·0 | 10 10·3 |
| Feb. 0 | 6 11·7 | 6 17·5 | 11 17·0 | 5 21·8 | 2 17·6 | 5 28·5 | 3 27·4 | 10 8·7 |
| Mar. 0 | 6 21·8 | 6 24·6 | 11 22·8 | 5 20·7 | 2 16·9 | 5 28·2 | 3 26·7 | 10 7·1 |
| Apr. 0 | 6 25·1 | 6 22·6 | 11 29·9 | 5 18·6 | 2 16·8 | 5 27·5 | 3 26·1 | 10 5·5 |
| May 0 | 6 17·8 | 6 12·5 | 0 7·1 | 5 16·4 | 2 17·5 | 5 26·6 | 3 25·9 | 10 3·9 |
| June 0 | 6 8·7 | 6 8·1 | 0 14·3 | 5 15·1 | 2 18·9 | 5 26·0 | 3 26·1 | 10 2·3 |
| July 0 | 6 10·4 | 6 15·0 | 0 20·4 | 5 15·3 | 2 20·6 | 5 25·7 | 3 26·7 | 10 0·7 |
| Aug. 0 | 6 21·8 | 6 29·5 | 0 25·2 | 5 17·0 | 2 22·5 | 5 26·0 | 3 27·6 | 9 29·0 |
| Sept. 0 | 7 8·7 | 7 18·2 | 0 27·6 | 5 19·9 | 2 24·1 | 5 26·7 | 3 28·5 | 9 27·4 |
| Oct. 0 | 7 28·3 | 8 8·8 | 0 27·1 | 5 23·4 | 2 25·1 | 5 27·7 | 3 29·4 | 9 25·8 |
| Nov. 9 | 8 20·5 | 9 1·7 | 0 23·8 | 5 27·1 | 2 25·3 | 5 28·9 | 3 29·9 | 9 24·2 |
| Dec. 0 | 9 13·0 | 9 24·6 | 0 19·9 | 6 0·5 | 2 24·8 | 5 29·8 | 4 0·0 | 9 22·6 |
| **1953** | | | | | | | | |
| Jan. 0 | 10 6·9 | 10 18·4 | 0 17·8 | 6 3·0 | 2 23·6 | 6 0·5 | 3 29·7 | 9 20·9 |
| Feb. 0 | 11 0·7 | 11 12·1 | 0 18·9 | 6 4·1 | 2 22·3 | 6 0·7 | 3 29·1 | 9 19·3 |
| Mar. 0 | 11 21·8 | 0 2·9 | 0 22·3 | 6 3·6 | 2 21·5 | 6 0·4 | 3 28·4 | 9 17·8 |
| Apr. 0 | 0 14·6 | 0 25·4 | 0 28·0 | 6 1·8 | 2 21·3 | 5 29·7 | 3 27·8 | 9 16·2 |
| May 0 | 1 5·9 | 1 16·3 | 1 4·6 | 5 29·6 | 2 21·9 | 5 28·9 | 3 27·6 | 9 14·6 |
| June 0 | 1 27·3 | 2 7·4 | 1 11·8 | 5 27·8 | 2 23·2 | 5 28·2 | 3 27·8 | 9 12·9 |
| July 0 | 2 17·3 | 2 27·2 | 1 18·7 | 5 27·4 | 2 24·9 | 5 27·9 | 3 28·4 | 9 11·3 |
| Aug. 0 | 3 7·3 | 3 17·2 | 1 25·1 | 5 28·5 | 2 26·7 | 5 28·1 | 3 29·3 | 9 9·7 |
| Sept. 0 | 3 27·4 | 4 7·0 | 2 0·1 | 6 0·9 | 2 28·4 | 4 28·8 | 4 0·3 | 9 8·1 |
| Oct. 0 | 4 16·4 | 4 25·8 | 2 2·9 | 6 4·1 | 2 29·5 | 5 29·8 | 4 1·1 | 9 6·5 |
| Nov. 0 | 5 5·8 | 5 15·1 | 2 2·8 | 6 7·8 | 2 29·9 | 6 0·9 | 4 1·6 | 9 4·8 |
| Dec. 0 | 5 24·3 | 6 3·5 | 2 0·0 | 6 11·3 | 2 29·5 | 6 1·9 | 4 1·8 | 9 3·2 |
| **1954** | | | | | | | | |
| Jan. 0 | 6 13·1 | 6 22·0 | 1 25·9 | 6 14·2 | 2 28·4 | 6 2·6 | 4 1·5 | 9 1·6 |
| Feb. 0 | 7 1·3 | 7 9·7 | 1 23·4 | 6 15·9 | 2 27·0 | 6 2·9 | 4 0·9 | 8 29·9 |
| Mar. 0 | 7 16·7 | 7 24·3 | 1 23·7 | 6 16·0 | 2 26·1 | 6 2·6 | 4 0·2 | 8 28·5 |
| Apr. 0 | 8 1·7 | 8 7·6 | 1 26·8 | 6 14·7 | 2 25·8 | 6 1·9 | 3 29·6 | 8 26·8 |
| May 0 | 8 12·2 | 8 14·9 | 2 1·9 | 6 12·6 | 2 26·3 | 6 1·1 | 3 29·3 | 8 25·8 |
| June 0 | 8 15·0 | 8 12·2 | 2 8·3 | 6 10·5 | 2 27·5 | 6 0·4 | 3 29·5 | 8 23·6 |
| July 0 | 8 7·8 | 8 3·8 | 3 15·0 | 6 9·5 | 2 29·2 | 6 0·1 | 4 0·4 | 8 22·0 |
| Aug. 0 | 8 2·4 | 8 4·2 | 2 21·9 | 6 9·9 | 3 1·0 | 6 0·2 | 4 0·9 | 8 20·4 |
| Sept. 0 | 8 9·0 | 8 15·6 | 2 28·3 | 6 11·8 | 3 2·7 | 6 0·9 | 4 1·9 | 8 18·7 |
| Oct. 0 | 8 23·6 | 9 2·6 | 3 3·2 | 6 14·7 | 3 4·0 | 6 1·9 | 4 2·7 | 8 17·1 |
| Nov. 0 | 9 13·0 | 9 23·2 | 3 6·2 | 6 18·3 | 3 4·5 | 6 3·0 | 4 3·4 | 8 15·5 |
| Dec. 0 | 10 3·7 | 10 14·4 | 3 6·4 | 6 21·8 | 3 4·2 | 6 1·0 | 4 3·6 | 8 13·9 |
| Dec. 31 | 10 25·9 | 11 6·6 | 3 3·7 | 6 25·0 | 3 3·1 | 6 4·8 | 4 3·3 | 8 12·3 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1955** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Fri. | 8 15 32 | 10 28 4 | 24·93 | 6·034 | 8·0 | 336·5 |
| Feb. 0 | Mon. | 9 17 6 | 0 16 32 | 28·68 | 7·527 | 39·0 | 367·5 |
| Mar. 0 | Mon. | 10 15 23 | 0 25 28 | 29·16 | 5·972 | 67·0 | 395·5 |
| Apr. 0 | Thur. | 11 16 16 | 2 13 56 | 2·92 | 7·465 | 98·0 | 426·5 |
| May 0 | Sat. | 0 15 39 | 3 19 14 | 5·58 | 7·942 | 12·1 | 456·5 |
| June 0 | Tues. | 1 15 33 | 5 7 42 | 9·33 | 9·435 | 43·1 | 487·5 |
| July 0 | Thur. | 2 14 13 | 6 12 59 | 11·99 | 9·911 | 73·1 | 517·5 |
| Aug. 0 | Sun. | 3 13 47 | 8 1 27 | 15·74 | 11·404 | 104·1 | 548·5 |
| Sept. 0 | Wed. | 4 13 35 | 9 19 55 | 19·49 | 12·897 | 19·3 | 579·5 |
| Oct. 0 | Fri. | 5 12 49 | 10 25 13 | 22·16 | 13·374 | 49·3 | 25·6 |
| Nov. 0 | Mon. | 6 13 32 | 0 13 41 | 25·91 | 14·867 | 80·3 | 56·6 |
| Dec. 0 | Wed. | 7 13 45 | 1 18 58 | 28·57 | 15·343 | 110·3 | 86·6 |
| **1956** | | | | | | | |
| Jan. 0 | Sat. | 8 15 16 | 3 7 26 | 2·32 | 16·836 | 25·4 | 117·6 |
| Feb. 0 | Tues. | 9 16 50 | 4 25 54 | 6·07 | 18·329 | 56·4 | 148·6 |
| Mar. 0 | Wed. | 10 16 8 | 5 18 1 | 7·65 | 17·790 | 85·4 | 177·6 |
| Apr. 0 | Sat. | 11 17 0 | 7 6 29 | 11·40 | 19·283 | 0·5 | 208·6 |
| May 0 | Mon. | 0 16 22 | 8 11 45 | 14·06 | 19·760 | 30·5 | 238·6 |
| June 0 | Thur. | 1 16 15 | 10 0 15 | 17·81 | 21·252 | 61·5 | 269·6 |
| July 0 | Sat. | 2 14 55 | 11 5 32 | 20·47 | 21·729 | 91·5 | 299·6 |
| Aug. 0 | Tues. | 3 14 30 | 0 24 0 | 24·23 | 23·222 | 6·6 | 330·6 |
| Sept. 0 | Fri. | 4 14 18 | 2 12 28 | 27·98 | 24·715 | 37·6 | 361·6 |
| Oct. 0 | Sun. | 5 13 33 | 3 17 46 | 0·64 | 25·192 | 67·6 | 391·6 |
| Nov. 0 | Wed. | 6 14 17 | 5 6 14 | 4·39 | 26·684 | 98·6 | 422·6 |
| Dec. 0 | Fri. | 7 14 30 | 6 11 31 | 7·05 | 27·161 | 12·8 | 452·6 |
| **1957** | | | | | | | |
| Jan. 0 | Mon. | 8 16 2 | 7 29 59 | 10·80 | 28·654 | 43·8 | 483·6 |
| Feb. 0 | Thur. | 9 17 36 | 9 18 27 | 14·56 | 0·147 | 74·8 | 514·6 |
| Mar. 0 | Thur. | 10 15 53 | 9 27 23 | 15·04 | 28·592 | 102·8 | 542·6 |
| Apr. 0 | Sun. | 11 16 45 | 11 15 51 | 18·79 | 0·085 | 17·9 | 573·6 |
| May 0 | Tues. | 0 16 7 | 0 21 9 | 21·45 | 0·562 | 47·9 | 19·7 |
| June 0 | Fri. | 1 16 1 | 2 9 38 | 25·21 | 2·054 | 78·9 | 50·7 |
| July 0 | Sun. | 2 14 40 | 3 14 54 | 27·87 | 2·531 | 108·9 | 80·7 |
| Aug. 0 | Wed. | 3 14 15 | 5 3 22 | 1·62 | 4·024 | 24·0 | 111·7 |
| Sept. 0 | Sat. | 4 14 3 | 6 21 50 | 5·37 | 5·517 | 55·0 | 142·7 |
| Oct. 0 | Mon. | 5 13 18 | 7 27 8 | 8·03 | 5·994 | 85·0 | 172·7 |
| Nov. 0 | Thur. | 6 14 2 | 9 15 36 | 11·78 | 7·486 | 0·1 | 203·7 |
| Dec. 0 | Sat. | 7 14 15 | 10 20 54 | 14·45 | 7·963 | 30·1 | 233·7 |
| **1958** | | | | | | | |
| Jan. 0 | Tues. | 8 15 47 | 0 9 21 | 18·20 | 9·456 | 61·1 | 264·7 |
| Feb. 0 | Fri. | 9 17 20 | 1 27 49 | 21·95 | 10·949 | 92·1 | 295·7 |
| Mar. 0 | Fri. | 10 15 37 | 2 6 46 | 22·43 | 9·394 | 4·2 | 323·7 |
| Apr. 0 | Mon. | 11 16 30 | 3 25 14 | 26·19 | 10·887 | 35·2 | 354·7 |
| May 0 | Wed. | 0 15 52 | 5 0 31 | 28·85 | 11·364 | 65·2 | 384·7 |
| June 0 | Sat. | 1 15 46 | 6 18 59 | 2·60 | 12·856 | 96·2 | 415·7 |
| July 0 | Mon. | 2 14 26 | 7 24 17 | 5·26 | 13·333 | 10·4 | 445·7 |
| Aug. 0 | Thur. | 3 14 1 | 9 12 45 | 9·01 | 14·826 | 41·4 | 476·7 |
| Sept. 0 | Sun. | 4 13 48 | 11 1 13 | 12·76 | 16·319 | 72·4 | 507·7 |
| Oct. 0 | Tues. | 5 13 3 | 0 6 30 | 15·43 | 16·796 | 102·4 | 537·7 |
| Nov. 0 | Fri. | 6 13 46 | 1 24 58 | 19·18 | 18·288 | 17·5 | 568·7 |
| Dec. 0 | Sun. | 7 13 59 | 3 0 16 | 21·84 | 18·765 | 47·5 | 14·8 |
| Dec. 31 | Wed. | 8 15 31 | 4 18 44 | 25·59 | 20·258 | 78·5 | 45·8 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1955** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 10 25·9 | 11 6·6 | 3 3·7 | 6 25·0 | 3 3·1 | 6 4·8 | 4 3·3 | 8 12·3 |
| Feb. 0 | 11 18·1 | 11 28·7 | 2 29·7 | 6 27·2 | 3 1·8 | 6 5·0 | 4 2·7 | 8 10·6 |
| Mar. 0 | 0 7·9 | 0 18·3 | 2 27·1 | 6 27·9 | 3 0·8 | 6 4·8 | 4 2·0 | 8 9·1 |
| Apr. 0 | 0 29·3 | 1 9·5 | 2 27·0 | 6 27·2 | 3 0·4 | 6 4·1 | 4 1·4 | 8 7·5 |
| May 0 | 1 19·6 | 1 29·5 | 2 29·6 | 6 25·3 | 3 0·7 | 6 3·3 | 4 1·1 | 8 5·9 |
| June 0 | 2 10·0 | 2 19·8 | 3 4·3 | 6 23·1 | 3 1·8 | 6 2·6 | 4 1·2 | 8 4·2 |
| July 0 | 2 29·5 | 3 9·1 | 3 10·2 | 6 21·6 | 3 3·4 | 6 2·3 | 4 1·7 | 8 2·7 |
| Aug. 0 | 3 19·3 | 3 28·9 | 3 16·9 | 6 21·4 | 3 5·3 | 6 2·4 | 4 2·6 | 8 1·0 |
| Sept. 0 | 4 9·0 | 4 18·6 | 3 23·7 | 6 22·7 | 3 7·1 | 6 3·0 | 4 3·6 | 7 29·4 |
| Oct. 0 | 4 28·2 | 5 7·7 | 3 29·7 | 6 25·2 | 3 8·4 | 6 3·9 | 4 4·5 | 7 28·8 |
| Nov. 0 | 5 18·0 | 5 27·7 | 4 4·8 | 6 28·6 | 3 9·1 | 6 5·1 | 4 5·1 | 7 26·1 |
| Dec. 0 | 6 7·4 | 6 17·1 | 4 7·7 | 7 2·1 | 3 8·9 | 6 6·1 | 4 5·4 | 7 24·6 |
| **1956** | | | | | | | | |
| Jan. 0 | 6 27·5 | 7 7·3 | 4 8·0 | 7 5·5 | 3 7·9 | 6 6·9 | 4 5·2 | 7 22·9 |
| Feb. 0 | 7 18·0 | 7 27·7 | 4 5·4 | 7 8·2 | 3 6·6 | 6 7·2 | 4 4·5 | 7 21·3 |
| Mar. 0 | 8 6·9 | 8 16·7 | 4 1·6 | 7 9·4 | 3 5·5 | 6 7·0 | 4 3 8 | 7 19·7 |
| Apr. 0 | 8 27·1 | 9 6·8 | 3 28·7 | 7 9·3 | 3 5·0 | 6 6·3 | 4 3·2 | 7 18·1 |
| May 0 | 9 16·3 | 9 25·5 | 3 28·5 | 7 7·8 | 3 5·2 | 6 5·5 | 4 2·9 | 7 16·5 |
| June 0 | 10 4·9 | 10 13·0 | 4 1·0 | 7 5·5 | 3 6·3 | 6 4·8 | 4 3·0 | 7 14·8 |
| July 0 | 10 20·2 | 10 25·9 | 4 5·4 | 7 3·7 | 3 7·8 | 6 4·4 | 4 3·5 | 7 13·3 |
| Aug. 0 | 10 29·6 | 11 0·3 | 4 11·3 | 7 2·9 | 3 9·7 | 6 4·5 | 4 4·4 | 7 11·6 |
| Sept. 0 | 10 27·8 | 10 23·8 | 4 17·8 | 7 3·7 | 3 11·5 | 6 5·1 | 4 5·4 | 7 10·0 |
| Oct. 0 | 10 20·6 | 10 20·0 | 4 24·3 | 7 5·8 | 3 12·9 | 6 6·0 | 4 6·3 | 7 8·4 |
| Nov. 0 | 10 22·6 | 10 27·3 | 5 0·4 | 7 8·9 | 3 13·7 | 6 7·2 | 4 6·9 | 7 6·8 |
| Dec. 0 | 11 3·6 | 11 11·1 | 5 5·2 | 7 12·4 | 3 13·6 | 6 8·2 | 4 7·2 | 7 5·2 |
| **1957** | | | | | | | | |
| Jan. 0 | 11 19·9 | 11 28·6 | 5 8·1 | 7 15·9 | 3 12·7 | 6 ·0 | 4 7·0 | 7 3·5 |
| Feb. 0 | 0 8·2 | 0 17·4 | 5 8·2 | 7 18·9 | 3 11·4 | 6 9·3 | 4 6·4 | 7 1 9 |
| Mar. 0 | 0 25·5 | 1 4·9 | 5 5 8 | 7 20·6 | 3 10·3 | 6 9·2 | 4 5·7 | 7 0·2 |
| Apr. 0 | 1 15·0 | 1 24·4 | 5 1·9 | 7 21·0 | 3 9·7 | 6 8·6 | 4 5·0 | 6 28·7 |
| May 0 | 2 3·8 | 2 13·2 | 4 29·1 | 7 20·0 | 3 9·8 | 6 7·8 | 4 4·7 | 6 27·2 |
| June 0 | 2 23·3 | 3 2·7 | 4 28·8 | 7 17·9 | 3 10 7 | 6 7·0 | 4 4·7 | 6 25·5 |
| July 0 | 3 12·1 | 3 21·5 | 5 1·1 | 7 15·8 | 3 12·2 | 6 6·6 | 4 5·3 | 6 23·9 |
| Aug. 0 | 4 1·5 | 4 11·0 | 5 5·5 | 7 14·5 | 3 14·0 | 6 6·7 | 4 6·1 | 6 22·3 |
| Sept. 0 | 4 21·2 | 5 0·8 | 5 11·3 | 7 14·7 | 3 15·9 | 6 7·2 | 4 7·1 | 6 20·6 |
| Oct. 0 | 5 10·5 | 5 20·3 | 5 17·7 | 7 16·3 | 3 17·4 | 6 8·1 | 4 8·0 | 6 19·1 |
| Nov. 0 | 6 0·8 | 6 10·8 | 5 24·3 | 7 19·1 | 3 18·3 | 6 9·3 | 4 8·7 | 6 17·4 |
| Dec. 0 | 6 20·9 | 7 1·2 | 6 0·3 | 7 22·4 | 3 18·3 | 6 10·3 | 4 9·0 | 6 15·8 |
| **1958** | | | | | | | | |
| Jan. 0 | 7 12·2 | 7 22·7 | 6 5·2 | 7 26·1 | 3 17·6 | 6 11·1 | 4 8·9 | 6 14·2 |
| Feb. 0 | 8 4·0 | 8 14·8 | 6 8·0 | 7 29·3 | 3 16·3 | 6 11·5 | 4 8·3 | 6 12·5 |
| Mar. 0 | 8 24·1 | 9 5·1 | 6 8·2 | 8 1·4 | 3 15·2 | 6 11·4 | 4 7·6 | 6 11·0 |
| Apr 0 | 9 16·8 | 9 27·8 | 6 5·7 | 8 2·4 | 3 14 4 | 6 10·8 | 4 6·9 | 6 9·4 |
| May 0 | 10 8 9 | 10 19·9 | 6 1·9 | 8 1·9 | 3 14·4 | 6 10·0 | 4 6·5 | 6 7·8 |
| June 0 | 11 1·5 | 11 12·2 | 5 29·0 | 8 0·2 | 3 15·2 | 6 9·2 | 4 6·6 | 6 6·2 |
| July 0 | 11 22·7 | 0 2·7 | 5 28·7 | 7 28·0 | 3 16·6 | 6 8·8 | 4 7·1 | 6 4·6 |
| Aug. 0 | 0 12·7 | 0 21·3 | 6 1·0 | 7 26·3 | 3 18·4 | 6 8·8 | 4 7·9 | 6 2·9 |
| Sept. 0 | 0 29·2 | 1 5·0 | 6 5·4 | 7 25·9 | 3 20 3 | 6 9·3 | 4 8·9 | 6 1·3 |
| Oct. 0 | 1 8·5 | 1 9·1 | 6 11·1 | 7 26·9 | 3 21·8 | 6 10·2 | 4 9 9 | 5 29·7 |
| Nov. 0 | 1 6·2 | 1 1·0 | 6 17·7 | 7 29·3 | 3 22·9 | 6 11·3 | 4 10·6 | 5 28·1 |
| Dec. 0 | 0 26 1 | 0 23·5 | 6 24·3 | 8 2·4 | 3 23·1 | 6 12·4 | 4 10·9 | 5 26·5 |
| Dec. 31 | 0 24·0 | 0 27·1 | 7 0·5 | 8 6·1 | 3 22·4 | 6 13·3 | 4 10·8 | 5 24·8 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1959** | | | | | | | |
| | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Wed. | 8 15 31 | 4 18 44 | 25·59 | 20·258 | 78·5 | 45·8 |
| Feb. 0 | Sat. | 9 17 4 | 6 7 12 | 29·34 | 21·751 | 109·5 | 76·8 |
| Mar. 0 | Sat. | 10 15 22 | 6 16 8 | 29·83 | 20·196 | 21·6 | 104·8 |
| Apr. 0 | Tues. | 11 16 15 | 8 4 36 | 3·58 | 21·689 | 52·6 | 135·8 |
| May 0 | Thur. | 0 15 37 | 9 9 54 | 6·24 | 22·165 | 82·6 | 165·8 |
| June 0 | Sun. | 1 15 31 | 10 28 22 | 9·99 | 23·658 | 113·6 | 196·8 |
| July 0 | Tues. | 2 14 11 | 0 3 39 | 12·66 | 24·135 | 27·7 | 226·8 |
| Aug. 0 | Fri. | 3 13 48 | 1 22 7 | 16·41 | 25·628 | 58·7 | 257·8 |
| Sept. 0 | Mon. | 4 13 33 | 3 10 35 | 20·16 | 27·121 | 89·7 | 288·8 |
| Oct. 0 | Wed. | 5 12 47 | 4 15 53 | 22·82 | 27·598 | 3·9 | 318·8 |
| Nov. 0 | Sat. | 6 13 31 | 6 4 21 | 26·57 | 29·090 | 34·9 | 349·8 |
| Dec. 0 | Mon. | 7 13 44 | 7 9 38 | 29·23 | 29·567 | 64·9 | 379·8 |
| **1960** | | | | | | | |
| Jan. 0 | Thur. | 8 15 15 | 8 28 6 | 2·99 | 1·060 | 95·9 | 410·8 |
| Feb. 0 | Sun. | 9 16 49 | 10 16 34 | 6·74 | 2·553 | 11·0 | 441·8 |
| Mar. 0 | Mon. | 10 16 7 | 11 8 41 | 8·31 | 2·014 | 40·0 | 470·8 |
| Apr. 0 | Thur. | 11 16 59 | 0 27 9 | 12·06 | 3·506 | 71·0 | 501·8 |
| May 0 | Sat. | 0 16 21 | 2 2 27 | 14·72 | 3·983 | 101·0 | 531·8 |
| June 0 | Tues. | 1 16 14 | 3 20 55 | 18·47 | 5·476 | 16·1 | 562·8 |
| July 0 | Thur. | 2 14 54 | 4 26 12 | 21·14 | 5·953 | 46·1 | 8·9 |
| Aug. 0 | Sun. | 3 14 29 | 6 14 40 | 24·89 | 7·446 | 77·1 | 39·9 |
| Sept. 0 | Wed. | 4 14 17 | 8 3 8 | 28·64 | 8·939 | 108·1 | 70·9 |
| Oct. 0 | Fri. | 5 13 31 | 9 8 26 | 1·30 | 9·415 | 22·2 | 100·9 |
| Nov. 0 | Mon. | 6 14 16 | 10 26 54 | 5·05 | 10·908 | 53·2 | 131·9 |
| Dec. 0 | Wed. | 7 14 29 | 0 2 11 | 7·72 | 11·385 | 83·2 | 161·9 |
| **1961** | | | | | | | |
| Jan. 0 | Sat. | 8 16 1 | 1 20 39 | 11·47 | 12·878 | 114·2 | 192·9 |
| Feb. 0 | Tues. | 9 17 34 | 3 9 7 | 15·22 | 14·371 | 29·3 | 223·9 |
| Mar. 0 | Tues. | 10 15 51 | 3 18 4 | 15·70 | 12·816 | 57·3 | 251·9 |
| Apr. 0 | Fri. | 11 16 44 | 5 6 32 | 19·45 | 14·308 | 88·3 | 282·9 |
| May 0 | Sun. | 0 16 6 | 6 11 49 | 22·12 | 14·785 | 2·5 | 312·9 |
| June 0 | Wed. | 1 15 59 | 8 0 17 | 25·87 | 16·278 | 33·5 | 343·9 |
| July 0 | Fri. | 2 14 39 | 9 5 34 | 28·53 | 16·755 | 63·5 | 373·9 |
| Aug. 0 | Mon. | 3 14 14 | 10 24 2 | 2·28 | 18·248 | 94·5 | 404·9 |
| Sept. 0 | Thur. | 4 14 2 | 0 12 31 | 6·03 | 19·740 | 9·6 | 435·9 |
| Oct. 0 | Sat. | 5 13 16 | 1 17 48 | 8·70 | 20·217 | 39·6 | 465·9 |
| Nov. 0 | Tues. | 6 14 0 | 3 6 16 | 12·45 | 21·711 | 70·6 | 496·9 |
| Dec. 0 | Thur. | 7 14 13 | 4 11 33 | 15·11 | 22·187 | 100·6 | 526·9 |
| **1962** | | | | | | | |
| Jan. 0 | Sun. | 8 15 45 | 6 0 1 | 18·86 | 23·680 | 15·7 | 557·9 |
| Feb. 0 | Wed. | 9 17 18 | 7 18 29 | 22·61 | 25·173 | 46·7 | 4·9 |
| Mar. 0 | Wed. | 10 15 36 | 7 27 26 | 23·10 | 23·618 | 74·7 | 32·9 |
| Apr. 0 | Sat. | 11 16 28 | 9 15 54 | 26·85 | 25·110 | 105·7 | 63·9 |
| May 0 | Mon. | 0 15 51 | 10 21 11 | 29·51 | 25·587 | 19·8 | 93·9 |
| June 0 | Thur. | 1 15 45 | 0 9 39 | 3·26 | 27·080 | 50·8 | 124·9 |
| July 0 | Sat. | 2 14 24 | 1 14 57 | 5·92 | 27·557 | 80·8 | 154·9 |
| Aug. 0 | Tues. | 3 13 59 | 3 3 25 | 9·68 | 29·050 | 111·8 | 185·9 |
| Sept. 0 | Fri. | 4 13 47 | 4 21 53 | 13·43 | 30·540 | 27·0 | 216·9 |
| Oct. 0 | Sun. | 5 13 1 | 5 27 10 | 16·09 | 1·010 | 57·0 | 246·9 |
| Nov. 0 | Wed. | 6 13 45 | 7 15 38 | 19·84 | 2·512 | 88·0 | 277·9 |
| Dec. 0 | Fri. | 7 13 58 | 8 20 56 | 22·50 | 2·989 | 2·1 | 307·9 |
| Dec. 31 | Mon. | 8 15 29 | 10 9 24 | 26·25 | 4·482 | 33·1 | 338·9 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1959** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 0 24·0 | 0 27·1 | 7 0·5 | 8 6·1 | 3 22·4 | 6 13·3 | 4 10·8 | 5 24·8 |
| Feb. 0 | 1 2·4 | 1 8·7 | 7 5·5 | 8 9·5 | 3 21·2 | 6 13·7 | 4 10·2 | 5 23·2 |
| Mar. 0 | 1 14·8 | 1 22·4 | 7 8·2 | 8 12·0 | 3 20·0 | 6 13·6 | 4 9·5 | 5 21·7 |
| Apr. 0 | 2 1·0 | 2 9·3 | 7 8·5 | 8 13·6 | 3 19·1 | 6 13·0 | 4 8·8 | 5 20·1 |
| May 0 | 2 17·9 | 2 26·6 | 7 7·1 | 2 13·6 | 3 19·0 | 6 12·2 | 4 8·4 | 5 18·5 |
| June 0 | 3 6·1 | 3 15·0 | 7 2·3 | 8 12·3 | 3 19·7 | 6 11·4 | 4 8·4 | 5 16·8 |
| July 0 | 3 24·1 | 4 3·3 | 6 29·5 | 8 10·2 | 3 21·0 | 6 11·0 | 4 8·9 | 5 15·2 |
| Aug. 0 | 4 13·3 | 4 22·7 | 6 29·0 | 8 8·2 | 3 22·8 | 6 10·9 | 4 9·7 | 5 13·6 |
| Sept. 0 | 5 2·9 | 5 12·6 | 7 1·3 | 8 7·2 | 3 24·7 | 6 11·4 | 4 10·7 | 5 12·0 |
| Oct. 0 | 5 22·4 | 6 2·4 | 7 5·7 | 8 7·7 | 3 26·3 | 6 12·3 | 4 11·7 | 5 10·4 |
| Nov. 0 | 6 13·2 | 6 23·6 | 7 11·7 | 8 9·6 | 3 27·4 | 6 13·4 | 4 12·5 | 5 8·7 |
| Dec. 0 | 7 4·1 | 7 14·7 | 7 18·3 | 8 12·5 | 3 27·8 | 6 14·5 | 4 12·8 | 5 7·1 |
| **1960** | | | | | | | | |
| Jan. 0 | 7 26·3 | 8 7·3 | 7 25·2 | 8 16·0 | 2 27·3 | 6 15·4 | 4 12·8 | 5 5·5 |
| Feb. 0 | 8 19·2 | 9 0·5 | 8 1·6 | 8 19·6 | 3 26·1 | 6 15·8 | 4 12·2 | 5 3·8 |
| Mar. 0 | 9 11·2 | 9 22·6 | 8 6·5 | 8 22·5 | 3 24·9 | 6 15·7 | 4 11·5 | 5 2·3 |
| Apr. 0 | 10 5·0 | 10 16·5 | 8 9·7 | 8 24·5 | 3 23·9 | 6 15·2 | 4 10·8 | 5 0·7 |
| May 0 | 10 28·1 | 11 9·5 | 8 10·2 | 8 25·1 | 3 23·6 | 6 14·4 | 4 10·4 | 4 29·1 |
| June 0 | 11 21·6 | 0 2·8 | 8 7·9 | 8 24·3 | 3 24·2 | 6 13·6 | 4 10·4 | 4 27·4 |
| July 0 | 0 13·7 | 0 24·3 | 8 4·2 | 8 22·4 | 3 25·5 | 6 13·2 | 4 10·8 | 4 25·8 |
| Aug. 0 | 1 5·2 | 1 15·0 | 8 1·1 | 8 20·2 | 3 27·2 | 6 13·1 | 4 11·6 | 4 24·2 |
| Sept. 0 | 1 24·9 | 2 3·4 | 8 0·6 | 8 18·7 | 3 29·1 | 6 13·6 | 4 12·6 | 4 22·6 |
| Oct. 0 | 2 11·4 | 2 17·5 | 8 2·9 | 8 18·7 | 4 0·8 | 6 14·4 | 4 13·6 | 4 21·0 |
| Nov. 0 | 2 22·6 | 2 25·1 | 8 7·6 | 8 20·1 | 4 2·0 | 6 15·5 | 4 14·4 | 4 19·3 |
| Dec. 0 | 2 24·7 | 2 21·2 | 8 13·5 | 8 22·7 | 4 2·5 | 6 16·6 | 4 14·8 | 4 17·7 |
| **1961** | | | | | | | | |
| Jan. 0 | 2 15·2 | 2 9·9 | 8 20·6 | 8 26·2 | 4 2·1 | 6 17·5 | 4 14·7 | 4 16·1 |
| Feb. 0 | 2 6·9 | 2 7·2 | 8 27·7 | 8 29·8 | 4 1·0 | 6 18·0 | 4 14·2 | 4 14·5 |
| Mar. 0 | 2 9·4 | 2 13·7 | 9 3·8 | 9 2·8 | 3 29·8 | 6 17·9 | 4 13·5 | 4 13·0 |
| Apr. 0 | 2 19·7 | 2 26·3 | 9 9·3 | 9 5·3 | 3 28·7 | 6 17·4 | 4 12·7 | 4 11·3 |
| May 0 | 3 3·6 | 3 11·4 | 9 12·8 | 9 6·5 | 3 28·3 | 6 16·7 | 4 12·3 | 4 9·7 |
| June 0 | 3 20·1 | 3 28·6 | 9 13·8 | 9 6·2 | 3 28·8 | 6 15·9 | 4 12·3 | 4 8·1 |
| July 0 | 4 7·3 | 4 16·2 | 9 12·0 | 9 4·6 | 3 29·9 | 6 15·3 | 4 12·7 | 4 6·5 |
| Aug. 0 | 4 26·0 | 5 5·4 | 9 8·2 | 9 2·4 | 4 1·6 | 6 15·3 | 4 13·5 | 4 4·9 |
| Sept. 0 | 5 15·6 | 5 25·4 | 9 4·9 | 9 0·5 | 4 0·6 | 6 15·7 | 4 14·5 | 4 3·2 |
| Oct. 0 | 6 5·4 | 6 15·7 | 9 4·1 | 8 29·9 | 4 5·3 | 6 16·5 | 4 15·5 | 4 1·6 |
| Nov. 0 | 6 26·8 | 7 7·5 | 9 6·2 | 9 0·8 | 4 6·6 | 6 17·6 | 4 16·3 | 4 0·0 |
| Dec. 0 | 7 18·3 | 7 29·4 | 9 10·7 | 9 3·0 | 7 7·2 | 6 18·7 | 4 16·8 | 3 28·4 |
| **1962** | | | | | | | | |
| Jan. 0 | 8 11·4 | 8 22·8 | 9 16·9 | 9 6·2 | 4 7·0 | 6 19·6 | 4 16·7 | 3 26·7 |
| Feb. 0 | 9 5·2 | 9 16·8 | 9 24·1 | 9 9·9 | 4 5·9 | 6 20·1 | 4 16·2 | 3 25·1 |
| Mar. 0 | 9 27·0 | 10 8·8 | 10 0·8 | 9 13·1 | 4 4·7 | 6 20·1 | 4 15·5 | 3 23·6 |
| Apr. 0 | 10 21·3 | 11 3·0 | 10 7·8 | 9 16·0 | 4 3·6 | 6 19·7 | 4 14·8 | 3 22·0 |
| May 0 | 11 14·6 | 11 26·1 | 10 13·5 | 9 17·7 | 4 3·1 | 6 18·9 | 4 14·3 | 3 20·4 |
| June 0 | 0 8·2 | 0 19·3 | 10 17·7 | 9 18·0 | 4 3·4 | 6 18·1 | 4 14·2 | 3 18·7 |
| July 0 | 1 0·2 | 1 10·8 | 10 19·4 | 9 16·0 | 4 4·4 | 6 17·5 | 4 14·6 | 3 17·2 |
| Aug. 0 | 1 21·8 | 2 1·8 | 10 18·1 | 9 14·8 | 4 6·1 | 6 17·4 | 4 15·4 | 3 15·5 |
| Sept. 0 | 2 12·1 | 2 21·3 | 10 14·5 | 9 12·7 | 4 8·0 | 6 17·8 | 4 16·4 | 3 13·9 |
| Oct. 0 | 3 0·1 | 3 8·3 | 10 10·9 | 9 11·5 | 4 9·8 | 6 18·6 | 4 17·5 | 3 12·3 |
| Nov. 0 | 3 16·1 | 3 22·5 | 10 9·5 | 9 11·8 | 4 11·2 | 6 19·7 | 4 18·3 | 3 10·7 |
| Dec. 0 | 3 27·5 | 4 0·7 | 10 11·1 | 9 13·6 | 4 11·9 | 6 20·8 | 4 18·8 | 3 9·1 |
| Dec. 31 | 4 1·3 | 3 28·9 | 10 15·5 | 9 16·5 | 4 11·8 | 6 21·7 | 4 18·8 | 3 7·4 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1963** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Mon. | 8 15 29 | 10 9 24 | 26·25 | 4·482 | 33·1 | 338·9 |
| Feb. 0 | Thur. | 9 17 3 | 11 27 52 | 0·01 | 5·974 | 64·1 | 369·9 |
| Mar. 0 | Thur. | 10 15 20 | 0 6 48 | 0·49 | 4·420 | 92·1 | 397·9 |
| Apr. 0 | Sun. | 11 16 13 | 1 25 16 | 4·24 | 5·912 | 7·2 | 428·9 |
| May 0 | Tues. | 0 15 36 | 3 0 33 | 6·90 | 6·389 | 37·2 | 458·9 |
| June 0 | Fri. | 1 15 30 | 4 19 2 | 10·66 | 7·882 | 68·2 | 489 9 |
| July 0 | Sun. | 2 14 10 | 5 24 19 | 13·32 | 8·359 | 98·2 | 519·9 |
| Aug. 0 | Wed. | 3 13 44 | 7 12 47 | 17·07 | 9·852 | 13·3 | 550·9 |
| Sept. 0 | Sat. | 4 13 32 | 9 1 15 | 20·82 | 11·344 | 44·3 | 581·9 |
| Oct. 0 | Mon. | 5 12 46 | 10 6 32 | 23·48 | 11·821 | 74·3 | 28·0 |
| Nov. 0 | Thur. | 6 13 30 | 11 25 0 | 27·23 | 13·314 | 105·3 | 59·0 |
| Dec. 0 | Sat. | 7 13 42 | 1 0 18 | 29·90 | 13·791 | 19·4 | 89·0 |
| **1964** | | | | | | | |
| Jan. 0 | Tues. | 8 15 14 | 2 18 46 | 3·65 | 15·284 | 50·4 | 120·0 |
| Feb. 0 | Fri. | 9 16 47 | 4 7 14 | 7·40 | 16·776 | 81·4 | 151·0 |
| Mar. 0 | Sat. | 10 16 5 | 4 29 21 | 8·97 | 16·237 | 110·4 | 180·0 |
| Apr. 0 | Tues. | 11 16 57 | 6 17 49 | 12·72 | 17·730 | 25·6 | 211·0 |
| May 0 | Thur. | 0 16 19 | 7 23 6 | 15·39 | 18·207 | 55·6 | 241·0 |
| June 0 | Sun. | 1 16 13 | 9 11 34 | 19·14 | 19·700 | 86·6 | 272·0 |
| July 0 | Tues. | 2 14 52 | 10 16 52 | 21·80 | 20·177 | 0·7 | 302·0 |
| Aug. 0 | Fri. | 3 14 27 | 0 5 20 | 25·55 | 21·669 | 31·7 | 333·0 |
| Sept. 0 | Mon. | 4 14 15 | 1 23 48 | 29·30 | 23·162 | 62·7 | 364·0 |
| Oct. 0 | Wed. | 5 13 30 | 2 29 5 | 1·97 | 23·639 | 92·7 | 394·0 |
| Nov. 0 | Sat. | 6 14 14 | 4 17 33 | 5·72 | 25·132 | 7·8 | 425·0 |
| Dec. 0 | Mon. | 7 14 27 | 5 22 51 | 8·38 | 25·609 | 37·8 | 455·0 |
| **1965** | | | | | | | |
| Jan. 0 | Thur. | 8 15 59 | 7 11 19 | 12·13 | 27·102 | 68·8 | 486·0 |
| Feb. 0 | Sun | 9 17 23 | 8 29 47 | 15·88 | 28·594 | 99·8 | 517·0 |
| Mar. 0 | Sun | 10 15 50 | 9 8 43 | 16·37 | 27·039 | 11·9 | 545·0 |
| Apr. 0 | Wed. | 11 16 42 | 10 27 11 | 20·12 | 28·532 | 42·9 | 576·0 |
| May 0 | Fri. | 0 16 4 | 0 2 29 | 22·78 | 29·009 | 72·9 | 22·1 |
| June 0 | Mon. | 1 15 58 | 1 20 57 | 26·53 | 0·502 | 103·9 | 53·1 |
| July 0 | Wed. | 2 14 38 | 2 26 14 | 29·19 | 0·979 | 18·1 | 83·1 |
| Aug. 0 | Sat. | 3 14 12 | 4 14 42 | 2·94 | 2·471 | 49·1 | 114·1 |
| Sept. 0 | Tues. | 4 14 0 | 6 3 10 | 6·70 | 3·964 | 80·1 | 145·1 |
| Oct. 0 | Thur. | 5 13 15 | 7 8 28 | 9·36 | 4·441 | 110 1 | 175·1 |
| Nov. 0 | Sun. | 6 13 59 | 8 26 56 | 13·11 | 5·934 | 25·2 | 206·1 |
| Dec. 0 | Tues. | 7 14 12 | 10 2 13 | 15·77 | 6·411 | 55·2 | 236·1 |
| **1966** | | | | | | | |
| Jan. 0 | Fri. | 8 15 43 | 11 20 41 | 19·52 | 7 903 | 86·2 | 267·1 |
| Feb. 0 | Mon. | 9 17 17 | 1 9 9 | 23·27 | 9·396 | 1·3 | 298·1 |
| Mar. 0 | Mon. | 10 15 34 | 1 18 5 | 23·76 | 7·841 | 29·3 | 326·1 |
| Apr. 0 | Thur. | 11 16 27 | 3 6 33 | 27·51 | 9·334 | 60·3 | 357·1 |
| May 0 | Sat. | 0 15 49 | 4 11 51 | 0·17 | 9·811 | 90·3 | 387·1 |
| June 0 | Tues. | 1 15 43 | 6 0 19 | 3·92 | 11·304 | 5·4 | 418·1 |
| July 0 | Thur. | 2 14 23 | 7 5 36 | 6·59 | 11·781 | 35·4 | 448·1 |
| Aug. 0 | Sun. | 3 13 58 | 8 24 4 | 10·34 | 13·273 | 66·4 | 479·1 |
| Sept. 0 | Wed. | 4 13 45 | 10 12 32 | 14·09 | 14·766 | 97·4 | 510·1 |
| Oct. 0 | Fri. | 5 13 0 | 11 17 50 | 16·75 | 15·243 | 11·6 | 540·1 |
| Nov. 0 | Mon. | 6 13 43 | 1 6 18 | 20·50 | 16·736 | 42 6 | 571·1 |
| Dec. 0 | Wed. | 7 13 56 | 2 11 35 | 23·17 | 17·213 | 72·6 | 17 2 |
| Dec. 31 | Sat. | 8 15 28 | 4 0 3 | 26·92 | 18·705 | 103·6 | 48·2 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1963** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 4 1·3 | 3 28·9 | 10 15·5 | 9 16·5 | 4 11·8 | 6 21·7 | 4 18·8 | 3 7·4 |
| Feb. 0 | 3 23·4 | 3 17·6 | 10 21·7 | 9 20·1 | 4 10·9 | 6 22·3 | 4 18·3 | 3 5·8 |
| Mar. 0 | 3 13·8 | 3 12·0 | 10 28·2 | 9 23·4 | 4 9·7 | 6 22·3 | 4 17·6 | 3 4·3 |
| Apr. 0 | 3 13·2 | 3 16·5 | 11 5·7 | 9 26·6 | 4 8·5 | 6 21·9 | 4 16·8 | 3 2·6 |
| May 0 | 3 21·5 | 3 27·6 | 11 12·7 | 9 28·8 | 4 7·9 | 6 21·1 | 4 16·3 | 3 1·0 |
| June 0 | 4 5·0 | 4 12·7 | 11 19·0 | 9 29·8 | 4 8·0 | 6 20·3 | 4 16·2 | 2 29·4 |
| July 0 | 4 20·9 | 4 29·4 | 11 23·6 | 9 29·2 | 4 9·0 | 6 19·7 | 4 16·6 | 2 27·8 |
| Aug. 0 | 5 9·0 | 5 18·3 | 11 26·0 | 9 27·4 | 4 10·5 | 6 19·6 | 4 17·4 | 2 26·2 |
| Sept. 0 | 5 28·5 | 6 8·4 | 11 25·4 | 9 25·1 | 4 12·4 | 6 19·9 | 4 18·4 | 2 24·5 |
| Oct. 0 | 6 18·6 | 6 29·0 | 11 22·2 | 9 23·5 | 4 14·2 | 6 20·7 | 4 19·4 | 2 22·9 |
| Nov. 0 | 7 10·5 | 7 21·4 | 11 18·3 | 9 23·2 | 4 15·8 | 6 21·7 | 4 20·3 | 2 21·3 |
| Dec. 0 | 8 2·6 | 8 14·0 | 11 16·2 | 9 24·4 | 4 16·6 | 6 22·8 | 4 20·8 | 2 19·7 |
| **1964** | | | | | | | | |
| Jan. 0 | 8 26·3 | 9 8·0 | 11 17·3 | 9 27·0 | 4 16·6 | 6 23·8 | 4 20·8 | 2 18·1 |
| Feb. 0 | 9 20·6 | 10 2·5 | 11 21·3 | 10 0·4 | 4 15·8 | 6 24·4 | 4 20·4 | 2 16·4 |
| Mar. 0 | 10 13·5 | 10 25·3 | 11 26·8 | 10 3·9 | 4 14·6 | 6 24·5 | 4 19·7 | 2 14·9 |
| Apr. 0 | 11 7·8 | 11 19·4 | 0 3·7 | 10 7·4 | 4 13·4 | 6 24·0 | 4 18·9 | 2 13·2 |
| May 0 | 0 0·9 | 0 12·1 | 0 10·9 | 10 10·0 | 4 12·7 | 6 23·3 | 4 18·4 | 2 11·6 |
| June 0 | 0 24·0 | 1 4·9 | 0 18·1 | 10 11·5 | 4 12·7 | 6 22·5 | 4 18·3 | 2 10·0 |
| July 0 | 1 15·5 | 1 26·0 | 0 24·4 | 10 11·5 | 4 13·5 | 6 21·9 | 4 18·6 | 2 8·4 |
| Aug. 0 | 2 6·8 | 2 16·9 | 0 29·5 | 10 10·1 | 4 15·0 | 6 21·7 | 4 19·4 | 2 6·8 |
| Sept. 0 | 2 27·1 | 3 6·7 | 1 2·4 | 10 7·8 | 4 16·9 | 6 22·0 | 4 20·4 | 2 5·1 |
| Oct. 0 | 3 15·6 | 3 24·7 | 1 2·4 | 10 5·9 | 4 18·8 | 6 22·8 | 4 21·4 | 2 3·5 |
| Nov. 0 | 4 3·4 | 4 11·2 | 0 29·5 | 10 5·0 | 4 20·4 | 6 23·8 | 4 22·4 | 2 1·9 |
| Dec. 0 | 4 18·4 | 4 25·0 | 0 25·5 | 10 5·7 | 4 21·3 | 6 25·0 | 4 22·9 | 2 0·3 |
| **1965** | | | | | | | | |
| Jan. 0 | 5 0·2 | 5 3·6 | 0 22·9 | 10 7·8 | 4 21·5 | 6 25·9 | 4 22·9 | 1 28·7 |
| Feb. 0 | 5 4·7 | 5 2·8 | 0 23·5 | 10 11·1 | 4 20·7 | 6 26·5 | 4 22·5 | 1 27·0 |
| Mar. 0 | 4 29·0 | 4 23·2 | 0 26·5 | 10 14·4 | 4 19·6 | 6 26·6 | 4 21·9 | 1 25·5 |
| Apr. 0 | 4 17·9 | 4 15·5 | 1 1·9 | 10 18·1 | 4 18·3 | 6 26·3 | 4 21·0 | 1 23·9 |
| May 0 | 4 16·0 | 4 18·8 | 1 8·3 | 10 21·1 | 4 17·5 | 6 25·5 | 4 20·5 | 1 22·3 |
| June 0 | 4 23·9 | 5 0·0 | 1 15·5 | 10 23·2 | 4 17·4 | 6 24·7 | 4 20·3 | 1 20·7 |
| July 0 | 5 7·1 | 5 15·0 | 1 22·3 | 10 23·9 | 4 18·1 | 6 24·1 | 4 20·6 | 1 19·1 |
| Aug. 0 | 5 24·1 | 6 3·2 | 1 28·9 | 10 23·0 | 4 19·5 | 6 23·9 | 4 21·4 | 1 17·4 |
| Sept. 0 | 6 13·4 | 6 23·3 | 2 4·2 | 10 20·9 | 4 21·4 | 6 24·1 | 4 22·4 | 1 15·8 |
| Oct. 0 | 7 3·6 | 7 14·3 | 2 7·3 | 10 18·8 | 4 23·2 | 6 24·9 | 4 23·5 | 1 14·2 |
| Nov. 0 | 7 26·0 | 8 7·2 | 2 7·7 | 10 17·3 | 4 24·9 | 6 25·9 | 4 24·4 | 1 12·6 |
| Dec. 0 | 8 18·6 | 9 0·2 | 2 5·3 | 10 17·3 | 4 26·0 | 6 27·0 | 4 25·0 | 1 11·0 |
| **1966** | | | | | | | | |
| Jan. 0 | 9 12·7 | 9 24·5 | 2 1·2 | 10 19·0 | 4 26·2 | 6 28·0 | 4 25·0 | 1 9·3 |
| Feb. 0 | 10 7·2 | 10 19·0 | 1 28·3 | 10 21·9 | 4 25·7 | 6 28·7 | 4 24·7 | 1 7·7 |
| Mar. 0 | 10 29·2 | 11 10·9 | 1 28·1 | 10 25·2 | 4 24·6 | 6 28·8 | 4 24·0 | 1 6·2 |
| Apr. 0 | 11 23·1 | 0 4·5 | 2 0·8 | 10 28·9 | 4 23·3 | 6 28·4 | 4 23·2 | 1 4·6 |
| May 0 | 0 15·6 | 0 26·6 | 2 5·6 | 11 2·3 | 4 22·3 | 6 27·8 | 4 22·6 | 1 3·0 |
| June 0 | 1 8·1 | 1 18·7 | 2 11·8 | 11 4·9 | 4 22·1 | 6 26·9 | 4 22·4 | 1 1·3 |
| July 0 | 1 29·0 | 2 9·2 | 2 18·5 | 11 6·2 | 4 22·7 | 6 26·3 | 4 22·7 | 0 29·7 |
| Aug. 0 | 2 19·9 | 2 29·7 | 2 25·4 | 11 6·0 | 4 24·0 | 6 26·0 | 4 23·4 | 0 28·1 |
| Sept. 0 | 3 10·0 | 3 19·5 | 3 1·8 | 11 4·4 | 4 25·8 | 6 26·3 | 4 24·5 | 0 26·5 |
| Oct. 0 | 3 28·8 | 4 8·0 | 3 7·0 | 11 2·1 | 4 27·7 | 6 27·0 | 4 25·5 | 0 24·9 |
| Nov. 0 | 4 17·5 | 4 26·1 | 3 10·4 | 11 0·1 | 4 29·4 | 6 28·0 | 4 26·5 | 0 23·2 |
| Dec. 0 | 5 4·4 | 5 12·4 | 3 11·0 | 10 29·5 | 5 0·6 | 6 29·1 | 4 27·1 | 0 21·6 |
| Dec. 31 | 5 20·3 | 5 27·1 | 3 8·7 | 11 0·6 | 5 1·0 | 7 0·1 | 4 27·2 | 0 20·0 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1967** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Sat. | 8 15 28 | 4 0 3 | 26·92 | 18·705 | 103·6 | 48·2 |
| Feb. 0 | Tues. | 9 17 1 | 5 18 31 | 0·67 | 20·198 | 18·7 | 79·2 |
| Mar. 0 | Tues. | 10 15 19 | 5 27 27 | 1·15 | 18·643 | 46·7 | 107·2 |
| Apr. 0 | Fri. | 11 16 12 | 7 15 56 | 4·89 | 20·136 | 77·7 | 138·2 |
| May 0 | Sun. | 0 15 34 | 8 21 13 | 7·55 | 20·613 | 107·7 | 168·2 |
| June 0 | Wed. | 1 15 28 | 10 9 41 | 11·31 | 22·106 | 22·8 | 199·2 |
| July 0 | Fri. | 2 14 8 | 11 14 59 | 13·97 | 22·583 | 52·8 | 229·2 |
| Aug. 0 | Mon. | 3 13 43 | 1 3 27 | 17·73 | 24·075 | 83·8 | 260·2 |
| Sept. 0 | Thur. | 4 13 31 | 2 21 55 | 21·48 | 25·568 | 114·8 | 291·2 |
| Oct. 0 | Sat. | 5 12 45 | 3 27 12 | 24·15 | 26·045 | 28·9 | 321·2 |
| Nov. 0 | Tues. | 6 13 28 | 5 15 40 | 27·89 | 27·538 | 59·9 | 352·2 |
| Dec. 0 | Thur. | 7 13 41 | 6 20 57 | 0·56 | 28·015 | 89·9 | 382·2 |
| **1968** | | | | | | | |
| Jan. 0 | Sun. | 8 15 12 | 8 9 26 | 4·31 | 29·507 | 5·0 | 413·2 |
| Feb. 0 | Wed. | 9 16 46 | 9 27 54 | 8·06 | 1·000 | 36·0 | 444·2 |
| Mar. 0 | Thur. | 10 16 4 | 10 20 0 | 9·64 | 0·461 | 65·0 | 473·2 |
| Apr. 0 | Sun. | 11 16 56 | 0 8 28 | 13·38 | 1·954 | 96·0 | 504·2 |
| May 0 | Tues. | 0 16 18 | 1 13 46 | 16·05 | 2·431 | 10·2 | 534·2 |
| June 0 | Fri. | 1 16 11 | 3 2 14 | 19·80 | 3·924 | 41·2 | 565·2 |
| July 0 | Sun. | 2 14 51 | 4 7 31 | 22·46 | 4·400 | 71·2 | 11·3 |
| Aug. 0 | Wed. | 3 14 26 | 5 25 59 | 26·21 | 5·893 | 102·2 | 42·3 |
| Sept. 0 | Sat. | 4 14 14 | 7 14 27 | 29·97 | 7·386 | 17·3 | 73·3 |
| Oct. 0 | Mon. | 5 13 28 | 8 19 45 | 2·63 | 7·863 | 47·3 | 103·3 |
| Nov. 0 | Thur. | 6 14 13 | 10 8 13 | 6·38 | 9·356 | 78·3 | 134·3 |
| Dec. 0 | Sat. | 7 14 26 | 11 13 30 | 9·04 | 9·833 | 108·3 | 164·3 |
| **1969** | | | | | | | |
| Jan. 0 | Tues. | 8 15 58 | 1 1 58 | 12·79 | 11·325 | 23·4 | 195·3 |
| Feb. 0 | Fri. | 9 17 31 | 2 20 26 | 16·54 | 12·818 | 54·4 | 226·3 |
| Mar. 0 | Fri. | 10 15 48 | 2 29 23 | 17·03 | 11·263 | 82·4 | 254·3 |
| Apr. 0 | Mon. | 11 16 41 | 4 17 51 | 20·78 | 12·756 | 113·4 | 285·3 |
| May 0 | Wed. | 0 16 3 | 5 23 8 | 23·44 | 13·233 | 27·5 | 315·3 |
| June 0 | Sat. | 1 15 56 | 7 11 36 | 27·19 | 14·725 | 58·5 | 346·3 |
| July 0 | Mon. | 2 14 36 | 8 16 54 | 29·86 | 15·202 | 88·5 | 376·3 |
| Aug. 0 | Thur. | 3 14 11 | 10 5 22 | 3·60 | 16·695 | 3·7 | 407·3 |
| Sept. 0 | Sun. | 4 13 59 | 11 23 50 | 7·36 | 18·188 | 34·7 | 438·3 |
| Oct. 0 | Tues. | 5 13 13 | 0 29 7 | 10·01 | 18·665 | 64·7 | 468·3 |
| Nov. 0 | Fri. | 6 13 57 | 2 17 35 | 13·77 | 20·158 | 95·7 | 499·3 |
| Dec. 0 | Sun. | 7 14 10 | 3 22 53 | 16·44 | 20·634 | 9·8 | 529·3 |
| **1970** | | | | | | | |
| Jan. 0 | Wed. | 8 15 42 | 5 11 21 | 20·19 | 22·127 | 40·8 | 560·3 |
| Feb. 0 | Sat. | 9 17 15 | 6 29 49 | 23·94 | 23·620 | 71·8 | 7·3 |
| Mar. 0 | Sat. | 10 15 33 | 7 8 45 | 24·42 | 22·065 | 99·8 | 35·3 |
| Apr. 0 | Tues. | 11 16 25 | 8 27 13 | 28·16 | 23·558 | 14·9 | 66·3 |
| May 0 | Thur. | 0 15 48 | 10 2 30 | 0·84 | 24·035 | 44·9 | 96·3 |
| June 0 | Sun. | 1 15 42 | 11 20 58 | 4·59 | 25·527 | 75·9 | 127·3 |
| July 0 | Tues. | 2 14 21 | 0 26 16 | 7·25 | 26·004 | 105·9 | 157·3 |
| Aug. 0 | Fri. | 3 13 56 | 2 14 44 | 11·00 | 27·497 | 21·0 | 188·3 |
| Sept. 0 | Mon. | 4 13 44 | 4 3 12 | 14·75 | 28·990 | 52·0 | 219·3 |
| Oct. 0 | Wed. | 5 12 58 | 5 8 29 | 17·42 | 29·467 | 82·0 | 249·3 |
| Nov. 0 | Sat. | 6 13 42 | 6 26 57 | 21·17 | 0·959 | 113·0 | 280·3 |
| Dec. 0 | Mon. | 7 13 55 | 8 2 15 | 23·83 | 1·436 | 27·1 | 310·3 |
| Dec. 31 | Thur. | 8 15 26 | 9 20 43 | 27·58 | 2·929 | 58·1 | 341·3 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1967** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 5 20·2 | 5 26·9 | 3 8·7 | 11 0·6 | 5 1·0 | 7 0·1 | 4 27·2 | 0 20·0 |
| Feb. 0 | 6 3·0 | 6 7·2 | 3 4·6 | 11 3 0 | 5 0·6 | 7 0 8 | 4 26·9 | 0 18·3 |
| Mar. 0 | 6 9·1 | 6 9 6 | 3 1·8 | 11 6·1 | 4 29·6 | 7 0·9 | 4 26·2 | 0 16·8 |
| Apr. 0 | 6 6·7 | 6 1·6 | 3 1·2 | 11 9·9 | 4 28·3 | 7 0·6 | 4 25·4 | 0 15·2 |
| May 0 | 5 26·1 | 5 22·5 | 3 3·4 | 11 13·6 | 4 27·2 | 6 29 9 | 4 24 8 | 0 13·6 |
| June 0 | 5 21·7 | 5 23·9 | 3 7·9 | 11 16·6 | 4 26·9 | 6 29·1 | 4 24·6 | 0 11·9 |
| July 0 | 5 28·3 | 6 4·3 | 3 13 6 | 11 18·5 | 4 27·3 | 6 28·5 | 4 24 8 | 0 10·3 |
| Aug. 0 | 6 12·1 | 6 20·5 | 3 20 2 | 11 19·0 | 4 28·5 | 6 28 2 | 4 25 5 | 0 8·7 |
| Sept. 0 | 7 0 1 | 7 9·9 | 3 27·0 | 11 17·0 | 5 0·3 | 6 28 4 | 4 26·5 | 0 7·1 |
| Oct. 0 | 7 20·1 | 8 0·7 | 4 3·1 | 11 15·8 | 5 2·1 | 6 29·0 | 4 27·6 | 0 5·5 |
| Nov. 0 | 8 12·4 | 8 23·7 | 4 8·4 | 11 13·6 | 5 4·0 | 7 0·1 | 4 28·6 | 0 3·8 |
| Dec. 0 | 9 5·2 | 9 16·6 | 4 11·6 | 11 12·3 | 5 5·2 | 7 1·2 | 4 29·3 | 0 2·2 |
| **1968** | | | | | | | | |
| Jan. 0 | 9 29·2 | 10 10·9 | 4 12 3 | 11 12·7 | 5 5·8 | 7 2·2 | 4 29·5 | 0 0·6 |
| Feb. 0 | 10 23·1 | 11 4·9 | 4 10·0 | 11 14·6 | 5 5·5 | 7 2·9 | 4 29·1 | 11 28·9 |
| Mar. 0 | 11 15·6 | 11 26 9 | 4 6·4 | 11 17·5 | 5 4·5 | 7 3·1 | 4 28·5 | 11 27·5 |
| Apr. 0 | 0 8·8 | 0 19·8 | 4 3·2 | 11 21·3 | 5 3·2 | 7 2·8 | 4 27·6 | 11 25·8 |
| May 0 | 1 0·5 | 1 11·1 | 4 2·5 | 11 25·0 | 5 2·1 | 7 2·2 | 4 27·0 | 11 24·2 |
| June 0 | 1 22·2 | 2 2·4 | 4 4·6 | 11 28·5 | 5 1·7 | 7 1·3 | 4 26·8 | 11 22·6 |
| July 0 | 2 12·5 | 2 22·4 | 4 8·8 | 0 0·9 | 5 2·0 | 7 0·7 | 4 27·0 | 11 21·0 |
| Aug. 0 | 3 2·9 | 3 12·6 | 4 14·5 | 0 2·1 | 5 3·1 | 7 0·3 | 4 27·7 | 11 19·4 |
| Sept. 0 | 3 22·8 | 4 2·3 | 4 21·0 | 0 1·7 | 5 4·8 | 7 0·5 | 4 28·7 | 11 17·7 |
| Oct. 0 | 4 11·8 | 4 21·1 | 4 27·5 | 11 29·9 | 5 6·7 | 7 1·2 | 4 29·8 | 11 16·1 |
| Nov. 0 | 5 0·0 | 5 10·1 | 5 3·8 | 11 27·5 | 5 8·5 | 7 2·2 | 5 0·8 | 11 14·5 |
| Dec. 0 | 5 19·1 | 5 28·0 | 5 8·8 | 11 25·7 | 5 9 9 | 7 3·3 | 5 1·5 | 11 12·9 |
| **1969** | | | | | | | | |
| Jan. 0 | 6 7 2 | 6 15·6 | 5 12·0 | 11 25·3 | 5 10·6 | 7 4·3 | 5 1·7 | 11 11·2 |
| Feb. 0 | 6 21·2 | 7 1·8 | 5 12·5 | 11 26·7 | 5 10·3 | 7 5·1 | 5 1·4 | 11 9·6 |
| Mar. 0 | 7 7 8 | 7 14·0 | 5 10·4 | 11 29·2 | 5 9·5 | 7 5·3 | 5 0 8 | 11 8·1 |
| Apr. 0 | 7 19 3 | 7 22 4 | 5 6·6 | 0 2·9 | 5 8 2 | 7 5·0 | 4 29·9 | 11 6·5 |
| May 0 | 7 23·3 | 7 21·4 | 5 3·5 | 0 6·6 | 5 7·1 | 7 4·4 | 4 29·3 | 11 4·9 |
| June 0 | 7 16·8 | 7 11·9 | 5 2·8 | 0 10 3 | 5 6·5 | 7 3 6 | 4 29·0 | 11 3·2 |
| July 0 | 7 8·7 | 7 8·6 | 5 4·7 | 0 13·3 | 5 6·7 | 7 2·9 | 4 29·2 | 11 1·7 |
| Aug. 0 | 7 11·6 | 7 16·9 | 5 8·9 | 0 15·1 | 5 7·7 | 7 2·5 | 4 29·8 | 11 0 0 |
| Sept. 0 | 7 24·4 | 8 2 8 | 5 14·6 | 0 15·4 | 5 9·3 | 7 2 7 | 5 0·8 | 10 28·4 |
| Oct. 0 | 8 12·1 | 8 22·0 | 5 20 8 | 0 14·2 | 5 11·1 | 7 3·3 | 5 1·9 | 10 26·8 |
| Nov. 0 | 9 3·2 | 9 14·0 | 5 27·5 | 0 11·9 | 5 13 0 | 7 4·2 | 5 3·0 | 10 25·1 |
| Dec. 0 | 9 25·0 | 10 6·1 | 6 3·6 | 0 9·7 | 5 14·5 | 7 5·3 | 5 3·7 | 10 23·6 |
| **1970** | | | | | | | | |
| Jan. 0 | 10 18·1 | 10 29·2 | 6 8 8 | 0 8 6 | 5 15·3 | 7 6·4 | 5 3·9 | 10 21·9 |
| Feb. 0 | 11 11 1 | 11 22 1 | 6 11·9 | 0 9·3 | 5 15 2 | 7 7·2 | 5 3·7 | 10 20·3 |
| Mar. 0 | 0 1·5 | 0 12·2 | 6 12·4 | 0 11·3 | 5 14·5 | 7 7·5 | 5 3·1 | 10 18·8 |
| Apr. 0 | 0 23·5 | 1 4·0 | 6 10·3 | 0 14 6 | 5 13·2 | 7 7·3 | 5 2·3 | 10 17·1 |
| May 0 | 1 14·2 | 1 24·4 | 6 6·6 | 0 18 3 | 5 12·0 | 7 6·6 | 5 1·6 | 10 15·5 |
| June 0 | 2 5·0 | 2 14·9 | 6 3·4 | 0 22·2 | 5 11·3 | 7 5·8 | 5 1·2 | 10 13·9 |
| July 0 | 2 24 7 | 3 4·4 | 6 2·7 | 0 25·6 | 5 11·4 | 7 5·1 | 5 1·4 | 10 12·3 |
| Aug. 0 | 3 14·7 | 3 24·3 | 6 4·7 | 0 28·1 | 5 12·2 | 7 4 7 | 5 2·0 | 10 10·7 |
| Sept. 0 | 4 4·5 | 4 14·1 | 6 8·9 | 0 29·2 | 5 13·7 | 7 4 8 | 5 3·0 | 10 9·0 |
| Oct. 0 | 4 23·6 | 5 3·1 | 6 14·4 | 0 28·6 | 5 15·6 | 7 5 4 | 5 4·1 | 10 7·4 |
| Nov. 0 | 5 13·3 | 5 22·8 | 6 21·0 | 0 26 6 | 5 17·5 | 7 6·3 | 5 5·2 | 10 5·8 |
| Dec. 0 | 6 2·3 | 6 11·8 | 6 27·6 | 0 24·3 | 5 19·0 | 7 7·4 | 5 5·9 | 10 4·2 |
| Dec. 31 | 6 22·0 | 7 1·5 | 7 3 9 | 0 22 5 | 5 20·0 | 7 8·5 | 5 6·3 | 10 2·6 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **1971** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Thur. | 8 15 26 | 9 20 43 | 27·58 | 2·929 | 58·1 | 341·3 |
| Feb. 0 | Sun. | 9 17 0 | 11 9 11 | 1·33 | 4·422 | 89·1 | 372·3 |
| Mar. 0 | Sun. | 10 15 18 | 11 18 7 | 1·82 | 2·867 | 1·3 | 400·3 |
| Apr. 0 | Wed. | 11 16 11 | 1 6 35 | 5·57 | 4·360 | 32·3 | 431·3 |
| May 0 | Fri. | 0 15 33 | 2 11 53 | 8·23 | 4·837 | 62·3 | 461·3 |
| June 0 | Mon. | 1 15 27 | 4 0 21 | 11·98 | 6·329 | 93·3 | 492·3 |
| July 0 | Wed. | 2 14 7 | 5 5 38 | 14·64 | 6·806 | 7·4 | 522·3 |
| Aug. 0 | Sat. | 3 13 42 | 6 24 6 | 18·39 | 8·299 | 38·4 | 553·3 |
| Sept. 0 | Tues. | 4 13 29 | 8 12 34 | 22·15 | 9·792 | 69·4 | 0·4 |
| Oct. 0 | Thur. | 5 12 43 | 9 17 52 | 24·81 | 10·269 | 99·4 | 30·4 |
| Nov. 0 | Sun. | 6 13 26 | 11 6 20 | 28·56 | 11·761 | 14·5 | 61·4 |
| Dec. 0 | Tues. | 7 13 39 | 0 11 37 | 1·22 | 12·238 | 44·5 | 91·4 |
| **1972** | | | | | | | |
| Jan. 0 | Fri. | 8 15 10 | 2 0 5 | 4·97 | 13·731 | 75·5 | 122·4 |
| Feb. 0 | Mon. | 9 16 44 | 3 18 33 | 8·72 | 15·224 | 106·5 | 153·4 |
| Mar. 0 | Tues. | 10 16 2 | 4 10 40 | 10·30 | 14·685 | 19·6 | 182·4 |
| Apr. 0 | Fri. | 11 16 54 | 5 29 8 | 14·05 | 16·178 | 50·6 | 213·4 |
| May 0 | Sun. | 0 16 16 | 7 4 25 | 16·71 | 16·654 | 80·6 | 243·4 |
| June 0 | Wed. | 1 16 10 | 8 22 53 | 20·46 | 18·147 | 111·6 | 274·4 |
| July 0 | Fri. | 2 14 49 | 9 28 11 | 23·13 | 18·624 | 25·8 | 304·4 |
| Aug. 0 | Mon. | 3 14 24 | 11 16 39 | 26·88 | 20·117 | 56·8 | 335·4 |
| Sept. 0 | Thur. | 4 14 12 | 1 5 7 | 0·63 | 21·610 | 87·8 | 366·4 |
| Oct. 0 | Sat. | 5 13 27 | 2 10 24 | 3·29 | 22·087 | 1·9 | 396·4 |
| Nov. 0 | Tues. | 6 14 11 | 3 28 52 | 7·04 | 23·579 | 32·9 | 427·4 |
| Dec. 0 | Thur. | 7 14 24 | 5 4 10 | 9·70 | 24·056 | 62·9 | 457·4 |
| **1973** | | | | | | | |
| Jan. 0 | Sun. | 8 15 56 | 6 22 38 | 13·46 | 25·549 | 93·9 | 488·4 |
| Feb. 0 | Wed. | 9 17 29 | 8 11 6 | 17·21 | 27·042 | 9·0 | 519·4 |
| Mar. 0 | Wed. | 10 15 47 | 8 20 2 | 17·69 | 25·487 | 37·0 | 547·4 |
| Apr. 0 | Sat. | 11 16 39 | 10 8 30 | 21·44 | 26·980 | 68·0 | 578·4 |
| May 0 | Mon. | 0 16 1 | 11 13 48 | 24·11 | 27·456 | 98·0 | 24·5 |
| June 0 | Thur. | 1 15 55 | 1 2 16 | 27·86 | 28·949 | 13·1 | 55·5 |
| July 0 | Sat. | 2 14 35 | 2 7 33 | 0·52 | 29·426 | 43·1 | 85·5 |
| Aug. 0 | Tues. | 3 14 10 | 3 26 1 | 4·27 | 0·919 | 74·1 | 116·5 |
| Sept. 0 | Fri. | 4 13 57 | 5 14 29 | 8·02 | 2·412 | 105·1 | 147·5 |
| Oct. 0 | Sun. | 5 13 12 | 6 19 47 | 10·68 | 2·888 | 19·2 | 177·5 |
| Nov. 0 | Wed. | 6 13 56 | 8 8 15 | 14·44 | 4·381 | 50·2 | 208·5 |
| Dec. 0 | Fri. | 7 14 9 | 9 13 32 | 17·10 | 4·858 | 80·2 | 238·5 |
| **1974** | | | | | | | |
| Jan. 0 | Mon. | 8 15 40 | 11 2 0 | 20·85 | 6·351 | 111·2 | 269·5 |
| Feb. 0 | Thur. | 9 17 14 | 0 20 28 | 24·60 | 7·844 | 26·4 | 300·5 |
| Mar. 0 | Thur. | 10 15 31 | 0 29 24 | 25·09 | 6·289 | 54·4 | 328·5 |
| Apr. 0 | Sun. | 11 16 24 | 2 17 52 | 28·84 | 7·782 | 85·4 | 359·5 |
| May 0 | Tues. | 0 15 46 | 3 23 10 | 1·50 | 8·258 | 115·4 | 389·5 |
| June 0 | Fri. | 1 15 40 | 5 11 38 | 5·25 | 9·751 | 30·5 | 420·5 |
| July 0 | Sun. | 2 14 20 | 6 16 55 | 7·91 | 10·258 | 60·5 | 450·5 |
| Aug. 0 | Wed. | 3 13 55 | 8 5 23 | 11·66 | 11·721 | 91·5 | 481·5 |
| Sept. 0 | Sat. | 4 13 43 | 9 23 51 | 15·42 | 13·214 | 6·6 | 512·5 |
| Oct. 0 | Mon. | 5 12 57 | 10 29 9 | 18·08 | 13·690 | 36·6 | 542·5 |
| Nov. 0 | Thur. | 6 13 40 | 0 17 37 | 21·83 | 15·183 | 67·6 | 573·5 |
| Dec. 0 | Sat. | 7 13 53 | 1 22 54 | 24·49 | 15·660 | 97·6 | 19·6 |
| Dec. 31 | Tues. | 8 15 25 | 3 11 22 | 28·24 | 17·153 | 12·7 | 50·6 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1971** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 6 22·0 | 7 1·5 | 7 3·9 | 0 22·5 | 5 20·0 | 7 8·5 | 5 6·3 | 10 2·6 |
| Feb. 0 | 7 11·5 | 7 20·9 | 7 9·2 | 0 22·4 | 5 20·0 | 7 9·3 | 5 6·0 | 10 0·9 |
| Mar. 0 | 7 29·0 | 8 8·1 | 7 12·1 | 0 23·8 | 5 19·4 | 7 9·6 | 5 5·4 | 9 29·4 |
| Apr. 0 | 8 17·7 | 8 26·3 | 7 12·9 | 0 26·6 | 5 18·2 | 7 9·4 | 5 4·6 | 9 27·7 |
| May 0 | 9 4·5 | 9 12·1 | 7 10·9 | 1 0·2 | 5 16·9 | 7 8·9 | 5 3·9 | 9 26·1 |
| June 0 | 9 19·2 | 9 24·4 | 7 7·2 | 1 4·2 | 5 16·1 | 7 8·1 | 5 3·5 | 9 24·5 |
| July 0 | 9 27·7 | 9 28·4 | 7 4·0 | 1 7·9 | 5 16·0 | 7 7·3 | 5 3·6 | 9 22·9 |
| Aug. 0 | 9 26·1 | 9 22·3 | 7 3·2 | 1 10·9 | 5 16·8 | 7 6·9 | 5 4·3 | 9 21·3 |
| Sept. 0 | 9 19·0 | 9 18·6 | 7 5·2 | 1 12·7 | 5 18·2 | 7 6·9 | 5 5·2 | 9 19·6 |
| Oct. 0 | 9 21·1 | 9 26·0 | 7 9·3 | 1 12·9 | 5 20·0 | 7 7·5 | 5 6·3 | 9 18·0 |
| Nov. 0 | 10 3·2 | 10 11·1 | 7 15·1 | 1 11·6 | 5 21·9 | 7 8·4 | 5 7·4 | 9 16·4 |
| Dec. 0 | 10 19·9 | 10 29·1 | 7 21·7 | 1 9·2 | 5 23·5 | 7 9·5 | 5 8·2 | 9 14·8 |
| **1972** | | | | | | | | |
| Jan. 0 | 11 9·3 | 11 19·0 | 7 28·7 | 1 7·0 | 5 24·6 | 7 10·6 | 5 8·6 | 9 13·2 |
| Feb. 0 | 11 29·6 | 0 9·5 | 8 5·2 | 1 6·1 | 5 24·8 | 7 11·4 | 5 8·4 | 9 11·5 |
| Mar. 0 | 10 18·7 | 0 28·6 | 8 10·3 | 1 6·9 | 5 24·3 | 7 11·8 | 5 7·8 | 9 10·0 |
| Apr. 0 | 1 9·0 | 1 18·8 | 8 13·9 | 1 9·2 | 5 23·1 | 7 11·6 | 5 7·0 | 9 8·4 |
| May 0 | 1 28·5 | 2 8·1 | 8 14·8 | 1 12·5 | 5 21·8 | 7 11·1 | 5 6·3 | 9 6·8 |
| June 0 | 2 18·3 | 2 27·9 | 8 12·9 | 1 16·4 | 5 20·9 | 7 10·2 | 5 5·9 | 9 5·2 |
| July 0 | 3 7·4 | 3 16·9 | 8 9·3 | 1 20·3 | 5 20·8 | 7 9·5 | 5 5·9 | 9 3·6 |
| Aug. 0 | 3 27·0 | 4 6·5 | 8 6·0 | 1 23·7 | 5 21·4 | 7 9·1 | 5 6·5 | 9 1·9 |
| Sept. 0 | 4 16·7 | 4 26·3 | 8 5·1 | 1 26·2 | 5 22·7 | 7 9·1 | 5 7·5 | 9 0·3 |
| Oct. 0 | 5 5·9 | 5 15·6 | 8 6·9 | 1 27·1 | 5 24·5 | 7 9·6 | 5 8·6 | 8 28·7 |
| Nov. 0 | 5 26·0 | 6 5·9 | 8 11·3 | 1 26·4 | 5 26·4 | 7 10·5 | 5 9·7 | 8 27·1 |
| Dec. 0 | 6 15·9 | 6 26·0 | 8 17·1 | 1 24·4 | 5 28·1 | 7 11·6 | 5 10·5 | 8 25·5 |
| **1973** | | | | | | | | |
| Jan. 0 | 7 6·7 | 7 17·2 | 8 24·1 | 1 21·9 | 5 29·2 | 7 12·7 | 5 10·9 | 8 23·9 |
| Feb. 0 | 7 28·0 | 8 8·4 | 9 1·5 | 1 19·8 | 5 29·6 | 7 13·7 | 5 11·1 | 8 22·2 |
| Mar. 0 | 8 17·5 | 8 28·0 | 9 7·6 | 1 19·9 | 5 29·1 | 7 14·0 | 5 10·5 | 8 20·7 |
| Apr. 0 | 9 9·4 | 9 19·9 | 9 13·4 | 1 21·5 | 5 27·9 | 7 13·9 | 5 9·8 | 8 19·1 |
| May 0 | 10 0·5 | 10 11·0 | 9 17·2 | 1 24·5 | 5 26·7 | 7 13·2 | 5 9·0 | 8 17·5 |
| June 0 | 10 22·1 | 11 2·1 | 9 18·8 | 1 28·4 | 5 25·7 | 7 12·4 | 5 8·5 | 8 15·9 |
| July 0 | 11 12·0 | 11 21·1 | 9 17·4 | 2 2·1 | 5 25·5 | 7 11·7 | 5 8·5 | 8 14·3 |
| Aug. 0 | 11 29·9 | 0 6·9 | 9 13·8 | 2 5·9 | 5 26·1 | 7 11·1 | 5 8·9 | 8 12·6 |
| Sept. 0 | 0 12·2 | 0 14·7 | 9 10·1 | 2 8·9 | 5 27·4 | 7 11·0 | 5 10·0 | 8 11·0 |
| Oct. 0 | 0 13·7 | 0 10·0 | 9 8·9 | 2 10·5 | 5 29·1 | 7 11·8 | 5 10·9 | 8 9·4 |
| Nov. 0 | 0 4·9 | 0 1·5 | 9 10·7 | 2 10·5 | 6 1·0 | 7 12·6 | 5 11·9 | 8 7·7 |
| Dec. 0 | 0 1·1 | 0 3·3 | 9 14·7 | 2 9·0 | 6 2·7 | 7 13·9 | 5 12·8 | 8 6·2 |
| **1974** | | | | | | | | |
| Jan. 0 | 0 8·4 | 0 14·5 | 9 20·9 | 2 6·6 | 6 3·9 | 7 14·9 | 5 13·6 | 8 4·5 |
| Feb. 0 | 0 22·0 | 0 29·7 | 9 28·0 | 2 4·4 | 6 4·3 | 7 15·8 | 5 13·4 | 8 2·9 |
| Mar. 0 | 1 6·9 | 1 15·3 | 10 4·7 | 2 3·8 | 6 3·9 | 7 16·2 | 5 12·4 | 8 1·4 |
| Apr. 0 | 1 24·7 | 2 3·6 | 10 11·9 | 2 4·7 | 6 2·8 | 7 16·1 | 5 12·5 | 7 29·7 |
| May 0 | 2 12·3 | 2 21·6 | 10 17·8 | 2 7·1 | 6 1·6 | 7 15·6 | 5 11·3 | 7 28·2 |
| June 0 | 3 1·1 | 3 10·4 | 10 22·3 | 2 10·6 | 6 0·5 | 7 14·8 | 5 10·8 | 7 26·5 |
| July 0 | 3 19·8 | 3 29·1 | 10 24·6 | 2 14·4 | 6 0·2 | 7 13·9 | 5 10·8 | 7 24·9 |
| Aug. 0 | 4 8·9 | 4 18·3 | 10 23·7 | 2 18·4 | 6 0·6 | 7 13·4 | 5 11·7 | 7 23·3 |
| Sept. 0 | 4 28·5 | 5 8·2 | 10 20·5 | 2 21·8 | 6 1·8 | 7 13·4 | 5 12·2 | 7 21·7 |
| Oct. 0 | 5 18·0 | 5 27·8 | 10 16·6 | 2 24·1 | 6 3·5 | 7 13·9 | 5 13·5 | 7 20·1 |
| Nov. 0 | 6 8·5 | 6 18·7 | 10 14·7 | 2 24·9 | 6 5·4 | 7 14·7 | 5 14·8 | 7 18·4 |
| Dec. 0 | 6 29·0 | 7 9·6 | 10 15·8 | 2 24·1 | 6 7·1 | 7 15·8 | 5 15·3 | 7 16·8 |
| Dec. 31 | 7 20·8 | 8 1·5 | 10 19·9 | 2 21·9 | 6 8·4 | 7 16·9 | 5 15·7 | 7 15·2 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **1975** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Tues. | 8 15 25 | 3 11 22 | 28·24 | 17·153 | 12·7 | 50·6 |
| Feb. 0 | Fri. | 9 16 58 | 4 29 50 | 1·99 | 18·646 | 43·7 | 81·6 |
| Mar. 0 | Fri. | 10 15 16 | 5 8 47 | 2·48 | 17·091 | 71·7 | 109·6 |
| Apr. 0 | Mon. | 11 16 9 | 6 27 15 | 6·23 | 18·583 | 102.7 | 140·6 |
| May 0 | Wed. | 0 15 32 | 8 2 32 | 8·89 | 19·060 | 16,9 | 170·6 |
| June 0 | Sat. | 1 15 26 | 9 21 0 | 12·64 | 20·553 | 47.9 | 201 6 |
| July 0 | Mon. | 2 14 5 | 10 26 18 | 15·31 | 21·030 | 77·9 | 231·6 |
| Aug. 0 | Thur. | 3 13 40 | 0 14 46 | 19·06 | 22·523 | 108·9 | 262·6 |
| Sept. 0 | Sun. | 4 13 27 | 2 3 14 | 22·81 | 24·016 | 24·0 | 293·6 |
| Oct. 0 | Tues. | 5 12 42 | 3 8 31 | 25·47 | 24·492 | 54·0 | 323·6 |
| Nov. 0 | Fri. | 6 13 25 | 4 26 59 | 29·22 | 25·985 | 85·0 | 354·6 |
| Dec. 0 | Sun. | 7 13 37 | 6 2 17 | 1·89 | 26·462 | 115·0 | 384·6 |
| **1976** | | | | | | | |
| Jan. 0 | Wed. | 8 15 9 | 7 20 45 | 5·64 | 27·955 | 30·1 | 415·6 |
| Feb. 0 | Sat. | 9 16 41 | 9 9 13 | 9·39 | 29·448 | 61·1 | 446·6 |
| Mar. 0 | Sun. | 10 16 0 | 10 1 20 | 10·96 | 28·909 | 90·1 | 475·6 |
| Apr. 0 | Wed. | 11 16 53 | 11 19 48 | 14·71 | 0·401 | 5·2 | 506·6 |
| May 0 | Fri. | 0 16 15 | 0 25 5 | 17·37 | 0·878 | 35·2 | 536·6 |
| June 0 | Mon. | 1 16 8 | 2 13 33 | 21·13 | 2·371 | 66·2 | 567·6 |
| July 0 | Wed. | 2 14 48 | 3 18 50 | 23·79 | 2·848 | 96·2 | 13·7 |
| Aug. 0 | Sat. | 3 14 23 | 5 7 19 | 27·54 | 4·341 | 11·4 | 44·7 |
| Sept. 0 | Tues. | 4 14 11 | 6 25 47 | 1·29 | 5·833 | 42·4 | 75·7 |
| Oct. 0 | Thur. | 5 13 26 | 8 1 4 | 3·95 | 6·310 | 72·4 | 105·7 |
| Nov. 0 | Sun. | 6 14 8 | 9 19 32 | 7·70 | 7·803 | 103·4 | 136·7 |
| Dec. 0 | Tues. | 7 14 21 | 10 21 49 | 10·37 | 8·280 | 17·5 | 166·7 |
| **1977** | | | | | | | |
| Jan. 0 | Fri. | 8 15 54 | 0 13 17 | 14·12 | 9·773 | 48·5 | 197·7 |
| Feb. 0 | Mon. | 9 17 28 | 2 1 45 | 17·87 | 11·265 | 79·5 | 228·7 |
| Mar. 0 | Mon. | 10 15 45 | 2 10 42 | 18·35 | 9·711 | 107·5 | 256·7 |
| Apr. 0 | Thur. | 11 16 38 | 3 29 10 | 22·11 | 11·203 | 22·6 | 287·7 |
| May 0 | Sat. | 0 16 0 | 5 4 27 | 24·77 | 11·680 | 52·6 | 317·7 |
| June 0 | Tues. | 1 15 54 | 6 22 55 | 28 52 | 13·173 | 83·6 | 348·7 |
| July 0 | Thur. | 2 14 33 | 7 28 13 | 1·18 | 13·650 | 113·6 | 378·7 |
| Aug. 0 | Sun. | 3 14 8 | 9 16 41 | 4·93 | 15·143 | 28·7 | 409·7 |
| Sept. 0 | Wed. | 4 13 56 | 11 5 9 | 8·68 | 16·635 | 59·7 | 440·7 |
| Oct. 0 | Fri. | 5 13 10 | 0 10 26 | 11·35 | 17·112 | 89 7 | 470·7 |
| Nov. 0 | Mon. | 6 13 54 | 1 28 54 | 15·10 | 18 605 | 4 8 | 501·7 |
| Dec. 0 | Wed. | 7 14 7 | 3 4 12 | 17·76 | 19·082 | 34·8 | 531·7 |
| **1978** | | | | | | | |
| Jan. 0 | Sat. | 8 15 39 | 4 22 40 | 21·51 | 20·575 | 65·8 | 562·7 |
| Feb. 0 | Tues. | 9 17 12 | 6 11 8 | 25·26 | 22·067 | 96·8 | 9·7 |
| Mar. 0 | Tues. | 10 15 30 | 6 20 4 | 25·75 | 20·512 | 9·0 | 37·7 |
| Apr. 0 | Fri. | 11 16 22 | 8 8 32 | 29·50 | 22·005 | 40·0 | 68·7 |
| May 0 | Sun. | 0 15 45 | 9 13 50 | 2·16 | 22·482 | 70·0 | 98·7 |
| June 0 | Wed. | 1 15 39 | 11 2 18 | 5·91 | 23 975 | 101·0 | 129·7 |
| July 0 | Fri. | 2 14 19 | 0 7 35 | 8·58 | 24·452 | 15·1 | 159·7 |
| Aug. 0 | Mon. | 3 13 53 | 1 26 3 | 12 33 | 25·945 | 46·1 | 190 7 |
| Sept. 0 | Thur. | 4 13 41 | 3 4 31 | 16·08 | 27·437 | 77·1 | 221·7 |
| Oct. 0 | Sat. | 5 12 55 | 4 19 48 | 18·74 | 27·914 | 107·1 | 251·7 |
| Nov. 0 | Tues. | 6 13 39 | 6 8 17 | 22·49 | 29·407 | 22 2 | 282 7 |
| Dec. 0 | Thur. | 7 13 51 | 7 13 34 | 25·15 | 29·884 | 52·2 | 312·7 |
| Dec. 31 | Sun. | 8 15 23 | 9 2 2 | 28·91 | 1·377 | 83·2 | 343·7 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1975** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 7 20·8 | 8 1·5 | 10 19·9 | 2 21·9 | 6 8·4 | 7 16·9 | 5 15·7 | 7 15·2 |
| Feb. 0 | 8 13·1 | 8 24·3 | 10 25·8 | 2 19·5 | 6 9·0 | 7 17·9 | 5 15·7 | 7 13·5 |
| Mar. 0 | 9 4·0 | 9 15·3 | 11 2·3 | 2 18·1 | 6 8·7 | 7 18·2 | 5 15·2 | 7 12·0 |
| Apr. 0 | 9 27·4 | 10 8·8 | 11 9·8 | 2 18·2 | 6 7·7 | 7 18·1 | 5 14·4 | 7 10·3 |
| May 0 | 10 20·2 | 11 1·5 | 11 16·8 | 2 20·0 | 6 6·4 | 1 17·6 | 5 13·6 | 7 8·8 |
| June 0 | 11 13·6 | 11 24·7 | 11 23·3 | 2 23·0 | 6 5·3 | 7 16·8 | 5 13·1 | 7 7·1 |
| July 0 | 0 5·5 | 0 16·0 | 11 28·2 | 2 26·7 | 6 4·9 | 7 16·0 | 5 13·1 | 7 5·5 |
| Aug. 0 | 0 26·9 | 1 6·5 | 0 1·2 | 3 0·7 | 6 5·2 | 7 15·4 | 5 13·6 | 7 3·9 |
| Sept. 0 | 1 15·9 | 1 24·3 | 0 1·0 | 3 4·4 | 6 6·2 | 7 15·4 | 5 14·5 | 7 2·2 |
| Oct. 0 | 2 0·7 | 2 5·9 | 11 28·3 | 3 7·2 | 6 7·8 | 7 15·9 | 5 15·6 | 7 0·7 |
| Nov. 0 | 2 8·9 | 2 8·7 | 11 24·2 | 3 8·8 | 6 9·8 | 7 16·7 | 5 16·6 | 6 29·0 |
| Dec. 0 | 2 4·9 | 1 29·6 | 11 21·7 | 3 8·8 | 6 11·5 | 7 17·9 | 5 17·6 | 6 27·6 |
| **1976** | | | | | | | | |
| Jan. 0 | 1 23·9 | 1 21·4 | 11 22·3 | 3 7·1 | 6 13·0 | 7 19·0 | 5 18·0 | 6 25·8 |
| Feb. 0 | 1 21·7 | 1 24·8 | 11 25·8 | 3 4·6 | 6 13·6 | 7 20·0 | 5 18·1 | 6 24·1 |
| Mar. 0 | 1 29·2 | 2 5·1 | 0 0·2 | 3 2·7 | 6 13·4 | 7 20·3 | 5 17·5 | 6 22·7 |
| Apr. 0 | 2 12·4 | 2 19·8 | 0 7·9 | 3 2·1 | 6 12·5 | 7 20·3 | 5 16·8 | 6 21·0 |
| May 0 | 2 27·6 | 3 5·8 | 0 15·0 | 3 3·1 | 6 11·3 | 7 19·8 | 5 16·0 | 6 19·4 |
| June 0 | 3 15·0 | 3 23·7 | 0 22·3 | 3 5·4 | 6 10·2 | 7 18·9 | 5 15·4 | 6 17·8 |
| July 0 | 4 2·6 | 4 11·6 | 0 28·7 | 3 9·6 | 6 9·6 | 7 18·1 | 5 15·3 | 6 16·2 |
| Aug. 0 | 4 21·4 | 5 0·9 | 1 4·1 | 3 12·9 | 6 9·7 | 7 17·6 | 5 15·9 | 6 14·5 |
| Sept. 0 | 5 11·0 | 5 20·8 | 1 7·4 | 3 16·8 | 6 10·7 | 7 17·5 | 5 16·8 | 6 12·9 |
| Oct. 0 | 6 0·7 | 6 10·7 | 1 7·9 | 3 20·1 | 6 12·3 | 7 18·0 | 5 18·0 | 6 11·3 |
| Nov. 0 | 6 21·8 | 7 2·3 | 1 5·3 | 3 22·2 | 6 14·2 | 7 18·8 | 5 19·0 | 6 9·7 |
| Dec. 0 | 7 13·0 | 7 23·9 | 1 1·4 | 3 22·9 | 6 16·0 | 7 19·9 | 5 20·0 | 6 8·1 |
| **1977** | | | | | | | | |
| Jan. 0 | 8 5·6 | 8 17·1 | 0 28·4 | 3 21·9 | 6 17·4 | 7 21·0 | 5 20·4 | 6 6·4 |
| Feb. 0 | 8 29·0 | 9 10·6 | 0 28·3 | 3 20·1 | 6 18·2 | 7 22·0 | 5 20·5 | 6 4·8 |
| Mar. 0 | 9 20·7 | 10 2·3 | 1 0·9 | 3 17·5 | 6 18·2 | 7 22·5 | 5 19·9 | 6 3·3 |
| Apr. 0 | 10 14·8 | 10 26·6 | 1 6·1 | 3 16·1 | 6 17·3 | 7 22·5 | 5 19·2 | 6 1·7 |
| May 0 | 11 8·2 | 11 19·7 | 1 12·3 | 3 16·4 | 6 16·1 | 7 22·1 | 5 18·4 | 6 0·1 |
| June 0 | 0 1·8 | 0 13·0 | 1 19·4 | 3 18·2 | 6 14·9 | 7 21·3 | 5 17·8 | 5 28·4 |
| July 0 | 0 23·9 | 1 4·6 | 1 26·3 | 3 21·2 | 6 14·2 | 7 20·5 | 5 17·8 | 5 26·8 |
| Aug. 0 | 1 15·6 | 1 25·7 | 2 3·0 | 3 24·9 | 6 14·3 | 7 19·9 | 5 18·3 | 5 25·2 |
| Sept. 0 | 2 6·0 | 2 15·0 | 2 8·4 | 3 28·9 | 6 15·3 | 7 19·8 | 5 19·3 | 5 23·5 |
| Oct. 0 | 2 23·5 | 3 1·3 | 2 11·9 | 4 2·4 | 6 16·6 | 7 20·2 | 5 20·5 | 5 21·9 |
| Nov. 0 | 3 8·3 | 3 13·9 | 2 12·8 | 4 5·2 | 6 18·5 | 7 20·9 | 5 21·5 | 5 20·3 |
| Dec. 0 | 3 17·2 | 3 18·2 | 2 10·7 | 4 6·5 | 6 20·3 | 7 22·0 | 5 22·5 | 5 18·7 |
| **1978** | | | | | | | | |
| Jan. 0 | 3 16·3 | 3 11·0 | 2 6·8 | 4 6·2 | 6 21·9 | 7 23·1 | 5 22·9 | 5 17·1 |
| Feb. 0 | 3 4·8 | 3 0·5 | 2 3·5 | 4 4·6 | 6 22·7 | 7 24·1 | 5 23·0 | 5 15·5 |
| Mar. 0 | 2 29·0 | 3 0·0 | 2 2·9 | 4 2·2 | 6 22·8 | 7 24·6 | 5 22·5 | 5 14·0 |
| Apr. 0 | 3 3·3 | 3 8·3 | 2 5·2 | 4 0·2 | 6 22·1 | 7 24·7 | 5 21·7 | 5 12·3 |
| May 0 | 3 14·4 | 3 21·2 | 2 9·7 | 3 29·7 | 6 21·0 | 7 24·3 | 5 20·9 | 5 10·7 |
| June 0 | 3 29·2 | 4 7·2 | 2 15·6 | 4 0·9 | 6 19·7 | 7 23·5 | 5 20·3 | 5 9·1 |
| July 0 | 4 15·6 | 4 24·3 | 2 22·1 | 4 3·3 | 6 18·9 | 7 22·7 | 5 20·3 | 5 7·5 |
| Aug. 0 | 5 4·1 | 5 13·3 | 2 29·1 | 4 6·8 | 6 18·8 | 7 22·1 | 5 20·8 | 5 5·9 |
| Sept. 0 | 5 23·5 | 6 3·3 | 3 5·6 | 4 10·7 | 6 19·6 | 7 21·9 | 5 21·7 | 5 4·2 |
| Oct. 0 | 6 13·4 | 6 23·8 | 3 10·9 | 4 14·3 | 6 21·0 | 7 22·3 | 5 22·8 | 5 2·6 |
| Nov. 0 | 7 5·3 | 7 15·9 | 3 14·6 | 4 17·5 | 6 22·8 | 7 23·0 | 5 23·9 | 5 1·0 |
| Dec. 0 | 7 26·9 | 8 8·0 | 3 15·6 | 4 19·5 | 6 24·6 | 7 24·1 | 5 24·9 | 4 29·4 |
| Dec. 31 | 8 20·3 | 9 1·9 | 3 13·7 | 4 20·0 | 6 26·2 | 7 25·2 | 5 25·6 | 4 27·7 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1979** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Sun. | 8 15 23 | 9 2 2 | 28·91 | 1·377 | 83·2 | 343·7 |
| Feb. 0 | Wed. | 9 16 57 | 10 20 30 | 2·66 | 2·869 | 114·2 | 374·7 |
| Mar. 0 | Wed. | 10 15 14 | 10 29 26 | 3·14 | 1·314 | 26·3 | 402·7 |
| Apr. 0 | Sat | 11 16 7 | 0 17 54 | 6·89 | 2·807 | 57·3 | 433·7 |
| May 0 | Mon. | 0 15 30 | 1 23 12 | 9·56 | 3·284 | 87·3 | 463·7 |
| June 0 | Thur. | 1 15 24 | 3 11 40 | 13·31 | 4·777 | 2·5 | 494·7 |
| July 0 | Sat. | 2 14 4 | 4 16 57 | 15·97 | 5·254 | 32·5 | 524·7 |
| Aug. 0 | Tues. | 3 13 39 | 6 5 25 | 19·72 | 6·746 | 63·5 | 555·7 |
| Sept. 0 | Fri. | 4 13 26 | 7 23 54 | 23·47 | 8·239 | 94·5 | 2·8 |
| Oct. 0 | Sun. | 5 12 40 | 8 29 11 | 26·13 | 8·716 | 8·6 | 32·8 |
| Nov. 0 | Wed. | 6 13 24 | 10 17 38 | 29·89 | 10·209 | 39·6 | 63·8 |
| Dec. 0 | Fri. | 7 13 36 | 11 22 56 | 2·55 | 10·686 | 69·6 | 93·8 |
| **1980** | | | | | | | |
| Jan. 0 | Mon. | 8 15 7 | 1 11 24 | 6·30 | 12·179 | 100·6 | 124·8 |
| Feb. 0 | Thur. | 9 16 41 | 2 29 52 | 10·05 | 13·671 | 15·7 | 155·8 |
| Mar. 0 | Fri. | 10 15 59 | 3 21 59 | 11·62 | 13·132 | 44·7 | 184·8 |
| Apr. 0 | Mon. | 11 16 51 | 5 10 27 | 15·38 | 14·625 | 75·7 | 215·8 |
| May 0 | Wed. | 0 16 13 | 6 15 45 | 18·04 | 15·102 | 105·7 | 245·8 |
| June 0 | Sat. | 1 16 7 | 8 4 13 | 21·79 | 16·595 | 20·8 | 276·8 |
| July 0 | Mon. | 2 14 46 | 9 9 30 | 24·45 | 17·072 | 50·8 | 306·8 |
| Aug. 0 | Thur. | 3 14 21 | 10 27 57 | 28·20 | 18·564 | 81·8 | 337·8 |
| Sept. 0 | Sun. | 4 14 9 | 0 16 26 | 1·95 | 20·057 | 112·8 | 368·8 |
| Oct. 0 | Tues. | 5 13 24 | 1 21 44 | 4·62 | 20·534 | 26·9 | 398·8 |
| Nov. 0 | Fri. | 6 14 8 | 3 10 12 | 8·37 | 22·027 | 57·9 | 429·8 |
| Dec. 0 | Sun. | 7 14 21 | 4 15 29 | 11·03 | 22·504 | 87·9 | 459·8 |
| **1981** | | | | | | | |
| Jan. 0 | Wed. | 8 15 53 | 6 3 57 | 14·78 | 23·996 | 3·1 | 490·8 |
| Feb. 0 | Sat. | 9 17 26 | 7 22 25 | 18·53 | 25·489 | 34·1 | 521·8 |
| Mar. 0 | Sat. | 10 15 43 | 8 1 21 | 19·02 | 23·934 | 62·1 | 549·8 |
| Apr. 0 | Tues. | 11 16 36 | 9 19 49 | 22·77 | 25·427 | 93·1 | 580·8 |
| May 0 | Thur. | 0 15 58 | 10 25 7 | 25·43 | 25·904 | 7·2 | 26·9 |
| June 0 | Sun. | 1 15 52 | 0 13 35 | 29·18 | 27·397 | 38·2 | 57·9 |
| July 0 | Tues. | 2 14 32 | 1 18 52 | 1·85 | 27·874 | 68·2 | 87·9 |
| Aug. 0 | Fri. | 3 14 7 | 3 7 20 | 5·60 | 29·366 | 99·2 | 118·9 |
| Sept. 0 | Mon. | 4 13 54 | 4 25 48 | 9·35 | 0·859 | 14·3 | 149·9 |
| Oct. 0 | Wed. | 5 13 9 | 6 1 6 | 12·01 | 1·336 | 44·3 | 179·9 |
| Nov. 0 | Sat. | 6 13 53 | 7 19 34 | 15·76 | 2·829 | 75·3 | 210·9 |
| Dec. 0 | Mon. | 7 14 5 | 8 24 51 | 18·42 | 3·306 | 105·3 | 240·9 |
| **1982** | | | | | | | |
| Jan. 0 | Thur. | 8 15 37 | 10 13 19 | 22·18 | 4·798 | 20·4 | 271·9 |
| Feb. 0 | Sun. | 9 17 11 | 0 1 47 | 25·93 | 6·291 | 51·4 | 302·9 |
| Mar. 0 | Sun. | 10 15 28 | 0 10 44 | 26·41 | 4·736 | 79·4 | 330·9 |
| Apr. 0 | Wed. | 11 16 21 | 1 29 12 | 0·16 | 6·229 | 110·4 | 361·9 |
| May 0 | Fri. | 0 15 43 | 3 4 29 | 2·82 | 6·706 | 24·6 | 391·9 |
| June 0 | Mon. | 1 15 37 | 4 22 57 | 6·58 | 8·199 | 55·6 | 422·9 |
| July 0 | Wed. | 2 14 17 | 5 28 15 | 9·24 | 8·675 | 85·6 | 452·9 |
| Aug. 0 | Sat. | 3 13 52 | 7 16 43 | 12·99 | 10·168 | 0·7 | 483·9 |
| Sept. 0 | Tues. | 4 13 40 | 9 5 11 | 16·74 | 11·661 | 31·7 | 514·9 |
| Oct. 0 | Thur. | 5 12 54 | 10 10 28 | 19·40 | 12·138 | 61·7 | 544·9 |
| Nov. 0 | Sun. | 6 13 37 | 11 28 56 | 23·15 | 13·631 | 92·7 | 575·9 |
| Dec. 0 | Tues. | 7 13 50 | 1 4 14 | 25·82 | 14·108 | 6·8 | 22·0 |
| Dec. 31 | Fri. | 8 15 21 | 2 22 42 | 29·57 | 15·600 | 37·8 | 53·0 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1979** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 8 20·3 | 9 1·9 | 3 13·7 | 4 20·0 | 6 26·2 | 7 25·2 | 5 25·6 | 4 27·7 |
| Feb. 0 | 9 14·4 | 9 26·2 | 3 9·8 | 4 18·7 | 6 27·3 | 7 26·2 | 5 25·9 | 4 26·1 |
| Mar. 0 | 10 6·4 | 10 18·3 | 3 6·7 | 4 16·6 | 6 27·4 | 7 26·8 | 5 25·7 | 4 24·6 |
| Apr. 0 | 11 0·9 | 11 12·5 | 3 5·6 | 4 14·4 | 6 26·9 | 7 26·9 | 5 24·9 | 4 22·9 |
| May 0 | 11 24·0 | 0 5·4 | 3 7·4 | 4 13·2 | 6 25·7 | 7 26·5 | 5 24·2 | 4 21·3 |
| June 0 | 0 17·4 | 0 28·4 | 3 11·7 | 4 13·6 | 6 24·5 | 7 25·8 | 5 23·4 | 4 19·7 |
| July 0 | 1 9·3 | 1 19·7 | 3 17·2 | 4 15·4 | 6 23·6 | 7 24·9 | 5 23·1 | 4 18·1 |
| Aug. 0 | 2 0·7 | 2 10·8 | 3 23·7 | 4 18·5 | 6 23·4 | 7 24·3 | 5 23·4 | 4 16·5 |
| Sept. 0 | 2 21·1 | 3 0·7 | 4 0·2 | 4 22·2 | 6 24·0 | 7 24·2 | 5 24·2 | 4 14·8 |
| Oct. 0 | 3 9·7 | 3 18·3 | 4 6·7 | 4 25·9 | 6 25·2 | 7 24·5 | 5 25·2 | 4 13·2 |
| Nov. 0 | 3 27·0 | 4 4·4 | 4 12·0 | 4 29·4 | 6 27·1 | 7 25·2 | 5 26·3 | 4 11·6 |
| Dec. 0 | 4 11·0 | 4 16·6 | 4 15·7 | 5 1·9 | 6 28·9 | 7 26·2 | 5 27·3 | 4 10·0 |
| **1980** | | | | | | | | |
| Jan. 0 | 4 20·6 | 4 22·1 | 4 16·7 | 5 3·1 | 7 0·6 | 7 27·3 | 5 28·0 | 4 8·4 |
| Feb. 0 | 4 20·7 | 4 17·6 | 4 14·7 | 5 2·6 | 7 1·7 | 7 28·4 | 5 28·3 | 4 6·7 |
| Mar. 0 | 4 11·0 | 4 5·6 | 4 11·2 | 5 0·8 | 7 2·0 | 7 28·9 | 5 28·1 | 4 5·2 |
| Apr. 0 | 4 2·8 | 4 3·1 | 4 7·8 | 4 28·4 | 7 1·5 | 7 29·1 | 5 27·3 | 4 3·6 |
| May 0 | 4 5·7 | 4 10·0 | 4 6·7 | 4 26·7 | 7 0·5 | 7 28·7 | 5 26·6 | 4 2·0 |
| June 0 | 4 16·3 | 4 23·3 | 4 8·4 | 4 26·4 | 6 29·2 | 7 27·9 | 5 25·8 | 4 0·4 |
| July 0 | 5 0·8 | 5 9·0 | 4 12·2 | 4 27·6 | 6 28·3 | 7 27·2 | 5 25·6 | 3 28·8 |
| Aug. 0 | 5 18·4 | 5 27·4 | 4 18·0 | 5 0·2 | 6 28·0 | 7 26·5 | 5 25·8 | 3 27·1 |
| Sept. 0 | 6 8·5 | 6 17·6 | 4 24·4 | 5 3·6 | 6 28·5 | 7 26·3 | 5 26·6 | 3 25·5 |
| Oct. 0 | 6 27·8 | 7 8·4 | 5 0·8 | 5 7·1 | 6 29·6 | 7 26·6 | 5 27·7 | 3 23·9 |
| Nov. 0 | 7 19·9 | 8 1·0 | 5 7·1 | 5 11·0 | 7 1·3 | 7 27·3 | 5 28·8 | 3 22·2 |
| Dec. 0 | 8 12·4 | 8 24·0 | 5 12·4 | 5 13·9 | 7 3·2 | 7 28·3 | 5 29·8 | 3 20·7 |
| **1981** | | | | | | | | |
| Jan. 0 | 9 6·4 | 9 18·2 | 5 15·8 | 5 15·6 | 7 4·9 | 7 29·5 | 6 0·5 | 3 19·0 |
| Feb. 0 | 10 0·8 | 10 12·8 | 5 16·8 | 5 15·8 | 7 6·1 | 8 0·5 | 6 0·8 | 3 17·4 |
| Mar. 0 | 10 23·0 | 11 4·7 | 5 15·0 | 5 14·5 | 7 6·5 | 8 1·1 | 6 0·6 | 3 15·9 |
| Apr. 0 | 11 17·1 | 11 28·6 | 5 11·3 | 5 12·2 | 7 6·2 | 8 1·2 | 5 29·8 | 3 14·2 |
| May 0 | 0 10·0 | 0 21·1 | 5 7·9 | 5 10·1 | 7 5·2 | 8 0·9 | 5 29·1 | 3 12·7 |
| June 0 | 1 2·7 | 1 13·4 | 5 6·8 | 5 9·2 | 7 3·9 | 8 0·2 | 5 28·4 | 3 11·0 |
| July 0 | 1 23·9 | 2 4·2 | 5 8·5 | 5 9·7 | 7 2·9 | 7 29·4 | 5 28·1 | 3 9·4 |
| Aug. 0 | 2 15·1 | 2 24·9 | 5 12·3 | 5 11·7 | 7 2·5 | 7 28·7 | 5 28·4 | 3 7·8 |
| Sept. 0 | 3 5·3 | 3 14·7 | 5 17·9 | 5 14·8 | 7 2·8 | 7 28·5 | 5 29·1 | 3 6·1 |
| Oct. 0 | 3 24·1 | 4 3·1 | 5 24·1 | 5 18·5 | 7 3·9 | 7 28·7 | 6 0·1 | 3 4·5 |
| Nov. 0 | 4 12·4 | 4 20·7 | 6 0·8 | 5 22·1 | 7 5·6 | 7 29·4 | 6 1·2 | 3 2·9 |
| Dec. 0 | 4 28·8 | 5 6·2 | 6 7·0 | 5 25·3 | 7 7·4 | 8 0·4 | 6 2·2 | 3 1·3 |
| **1982** | | | | | | | | |
| Jan. 0 | 5 13·3 | 5 19·0 | 6 12·3 | 5 27·6 | 7 9·2 | 8 1·6 | 6 2·9 | 2 29·7 |
| Feb. 0 | 5 23·4 | 5 25·6 | 6 15·8 | 5 28·4 | 7 10·5 | 8 2·6 | 6 3·2 | 2 28·0 |
| Mar. 0 | 5 25·2 | 5 22·6 | 6 16·7 | 5 27·7 | 7 11·0 | 8 3·2 | 6 3·0 | 2 26·5 |
| Apr 0 | 5 17·1 | 5 11·5 | 6 14·8 | 5 25·7 | 7 10·8 | 8 3·4 | 6 2·2 | 2 24·9 |
| May 0 | 5 7·8 | 5 6·8 | 6 11·3 | 5 23·5 | 7 9·9 | 8 3·1 | 6 1·5 | 2 23·3 |
| June 0 | 5 9·2 | 5 13·4 | 6 7·9 | 5 21·9 | 7 8·6 | 8 2·4 | 6 0·7 | 2 21·7 |
| July 0 | 5 19·1 | 5 26·0 | 6 6·8 | 5 21·8 | 7 7·6 | 8 1·6 | 6 0·5 | 2 20·1 |
| Aug. 0 | 6 4·5 | 6 13·0 | 6 8·4 | 5 23·2 | 7 7·0 | 8 0·9 | 6 0·7 | 2 18·4 |
| Sept. 0 | 6 22·5 | 7 3·0 | 6 12·4 | 5 25·9 | 7 7·4 | 8 0·6 | 6 1·5 | 2 16·8 |
| Oct. 0 | 7 13·2 | 7 23·8 | 6 17·8 | 5 29·3 | 7 8·2 | 8 0·8 | 6 2·6 | 2 15·2 |
| Nov. 0 | 8 5·7 | 8 16·8 | 6 24·4 | 6 3·0 | 7 9·8 | 8 1·5 | 6 3·7 | 2 13·6 |
| Dec. 0 | 8 28·4 | 9 9·9 | 7 1·0 | 6 6·4 | 7 11·7 | 8 2·5 | 6 4·7 | 2 12·0 |
| Dec. 31 | 9 22·5 | 10 4·3 | 7 7·4 | 6 9·1 | 7 13·4 | 8 3·7 | 6 5·5 | 2 10·3 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1983** | | s ° ' | s ° ' | | | d | d |
| Jan. 0 | Fri. | 8 15 21 | 2 22 42 | 29·57 | 15·600 | 37·8 | 53·0 |
| Feb. 0 | Mon. | 9 16 55 | 4 11 10 | 3·32 | 17·093 | 68·8 | 84·0 |
| Mar. 0 | Mon. | 10 15 13 | 4 20 6 | 3·80 | 15·538 | 96·8 | 112·0 |
| Apr. 0 | Thur. | 11 16 6 | 6 8 34 | 7·56 | 17·031 | 11·9 | 143·0 |
| May 0 | Sat. | 0 15 29 | 7 13 51 | 10·22 | 17·508 | 41·9 | 173·0 |
| June 0 | Tues. | 1 15 23 | 9 2 19 | 13·97 | 19·001 | 72·9 | 204·0 |
| July 0 | Thur. | 2 14 3 | 10 7 37 | 16·63 | 19·477 | 102·9 | 234·0 |
| Aug. 0 | Sun. | 3 13 37 | 11 26 5 | 20·38 | 20·970 | 18·0 | 265·0 |
| Sept. 0 | Wed. | 4 13 25 | 1 14 33 | 24·13 | 22·463 | 49·0 | 296·0 |
| Oct. 0 | Fri. | 5 12 39 | 2 19 50 | 26·80 | 22·940 | 79·0 | 326·0 |
| Nov. 0 | Mon. | 6 13 22 | 4 8 18 | 0·55 | 24·433 | 110·0 | 357·0 |
| Dec. 0 | Wed. | 7 13 34 | 5 13 36 | 3·21 | 24·909 | 24·2 | 387·0 |
| **1984** | | | | | | | |
| Jan. 0 | Sat. | 8 15 6 | 7 2 4 | 6·96 | 26·402 | 55·2 | 418·0 |
| Feb. 0 | Tues. | 9 16 39 | 8 20 32 | 10·71 | 27·895 | 86·2 | 449·0 |
| Mar. 0 | Wed. | 10 15 57 | 9 12 39 | 12·29 | 27·356 | 115·2 | 478·0 |
| Apr. 0 | Sat. | 11 16 50 | 11 1 7 | 16·04 | 28·849 | 30·3 | 509·0 |
| May 0 | Mon. | 0 16 12 | 0 6 24 | 18·70 | 29·326 | 60·3 | 539·0 |
| June 0 | Thur. | 1 16 5 | 1 24 52 | 22·45 | 0·818 | 91·3 | 570·0 |
| July 0 | Sat. | 2 14 45 | 3 0 10 | 25·11 | 1·295 | 5·4 | 16·1 |
| Aug. 0 | Tues. | 3 14 20 | 4 18 38 | 28·87 | 2·788 | 36·4 | 47·1 |
| Sept. 0 | Fri. | 4 14 8 | 6 7 6 | 2·62 | 4·281 | 67·4 | 78·1 |
| Oct. 0 | Sun. | 5 13 22 | 7 12 23 | 5·28 | 4·758 | 97·4 | 108·1 |
| Nov. 0 | Wed. | 6 14 7 | 9 0 51 | 9·03 | 6·250 | 12·5 | 139·1 |
| Dec. 0 | Fri. | 7 14 19 | 10 6 9 | 11·69 | 6·727 | 42·5 | 169·1 |
| **1985** | | | | | | | |
| Jan. 0 | Mon. | 8 15 51 | 11 24 37 | 15·44 | 8·220 | 73·5 | 200·1 |
| Feb. 0 | Thur. | 9 17 25 | 1 13 5 | 19·19 | 9·713 | 104·5 | 231·1 |
| Mar. 0 | Thur. | 10 15 42 | 1 22 1 | 19·68 | 8·158 | 16·6 | 259·1 |
| Apr. 0 | Sun. | 11 16 35 | 3 10 29 | 23·43 | 9·651 | 47·6 | 290·1 |
| May 0 | Tues. | 0 15 57 | 4 15 46 | 26·08 | 10·128 | 77·6 | 320·1 |
| June 0 | Fri. | 1 15 51 | 6 4 14 | 29·85 | 11·620 | 108·6 | 351·1 |
| July 0 | Sun. | 2 14 30 | 7 9 32 | 2·51 | 12·097 | 22·8 | 381·1 |
| Aug. 0 | Wed. | 3 14 5 | 8 28 0 | 6·26 | 13·590 | 53·8 | 412·1 |
| Sept. 0 | Sat. | 4 13 53 | 10 16 28 | 10·01 | 15·083 | 84·8 | 443·1 |
| Oct. 0 | Mon. | 5 13 7 | 11 21 45 | 12·67 | 15·560 | 114·8 | 473·1 |
| Nov. 0 | Thur. | 6 13 51 | 1 10 13 | 16·42 | 17·052 | 29·9 | 504·1 |
| Dec. 0 | Sat. | 7 14 4 | 2 15 31 | 19·09 | 17·529 | 59·9 | 534·1 |
| **1986** | | | | | | | |
| Jan. 0 | Tues. | 8 15 36 | 4 3 59 | 22·84 | 19·022 | 90·0 | 565·1 |
| Feb. 0 | Fri. | 9 17 9 | 5 22 27 | 26·59 | 20·515 | 6·0 | 12·1 |
| Mar. 0 | Fri. | 10 15 26 | 6 1 23 | 27·07 | 18·960 | 34·0 | 40·1 |
| Apr. 0 | Mon. | 11 16 19 | 7 19 51 | 0·83 | 20·453 | 65·0 | 71·1 |
| May 0 | Wed. | 0 15 42 | 8 25 9 | 3·49 | 20·930 | 95·0 | 101·1 |
| June 0 | Sat. | 1 15 36 | 10 13 37 | 7·24 | 22·422 | 10·1 | 132·1 |
| July 0 | Mon. | 2 14 16 | 11 18 54 | 9·90 | 22·899 | 40·1 | 162·1 |
| Aug. 0 | Thur | 3 13 51 | 1 7 22 | 13·65 | 24·392 | 71·1 | 193·1 |
| Sept. 0 | Sun. | 4 13 38 | 2 25 50 | 17·40 | 25·885 | 102·3 | 224·1 |
| Oct. 0 | Tues. | 5 12 52 | 4 1 8 | 20·07 | 26·362 | 16·3 | 254·1 |
| Nov. 0 | Fri. | 6 13 36 | 5 19 36 | 23·82 | 27·854 | 47·3 | 285·1 |
| Dec. 0 | Sun. | 7 13 48 | 6 24 53 | 26·48 | 28·331 | 77·3 | 315·1 |
| Dec. 31 | Wed. | 8 15 20 | 8 13 21 | 0·23 | 29·824 | 108·3 | 346·1 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1983** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 9 22·5 | 10 4·3 | 7 7·4 | 6 9·1 | 7 13·4 | 8 3·7 | 6 5·5 | 2 10·3 |
| Feb. 0 | 10 16·8 | 10 28·5 | 7 12·8 | 6 10·5 | 7 14·8 | 8 4·7 | 6 5·8 | 2 8·7 |
| Mar. 0 | 11 8·6 | 11 20·1 | 7 16·1 | 6 10·4 | 7 15·4 | 8 5·4 | 6 5·6 | 2 7·1 |
| Apr. 0 | 0 2·2 | 0 13·3 | 7 17·3 | 6 8·7 | 7 15·3 | 8 5·5 | 6 4·8 | 2 5·5 |
| May 0 | 0 24·3 | 1 5·1 | 7 15·7 | 6 6·5 | 7 14·5 | 8 5·3 | 6 4·0 | 2 3·9 |
| June 0 | 1 16·4 | 1 26·8 | 7 12·1 | 6 4·7 | 7 13·3 | 8 4·6 | 6 3·3 | 2 2·3 |
| July 0 | 2 7·1 | 2 17·0 | 7 8·7 | 6 3·9 | 7 12·2 | 8 3·8 | 6 3·0 | 2 0·7 |
| Aug. 0 | 2 27·8 | 3 7·5 | 7 7·4 | 6 4·6 | 7 11·5 | 8 3·1 | 6 3·3 | 1 29·0 |
| Sept. 0 | 3 17·8 | 3 27·2 | 7 9·1 | 6 6·9 | 7 11·6 | 8 2·8 | 6 4·1 | 1 27·4 |
| Oct. 0 | 4 6·6 | 4 15·9 | 7 12·9 | 6 9·9 | 7 12·5 | 8 3·0 | 6 5·1 | 1 25·8 |
| Nov. 0 | 4 25·7 | 5 4·6 | 7 18·6 | 6 13·5 | 7 14·0 | 8 3·7 | 6 6·2 | 1 24·2 |
| Dec. 0 | 5 13·4 | 5 22·0 | 7 25·2 | 6 17·1 | 7 15·8 | 8 4·6 | 6 7·2 | 1 22·6 |
| **1984** | | | | | | | | |
| Jan. 0 | 6 0·8 | 6 8·5 | 8 2·2 | 6 20·2 | 7 17·6 | 8 5·8 | 6 8·0 | 1 20·9 |
| Feb. 0 | 6 16·2 | 6 22·8 | 8 8·9 | 6 22·1 | 7 19·1 | 8 6·8 | 6 8·2 | 1 19·3 |
| Mar. 0 | 6 28·0 | 7 2·1 | 8 14·2 | 6 22·6 | 7 19·8 | 8 7·5 | 6 8·1 | 1 17·8 |
| Apr. 0 | 7 4·6 | 7 3·9 | 8 18·1 | 6 21·5 | 7 19·8 | 8 7·8 | 6 7·3 | 1 16·2 |
| May 0 | 7 0·6 | 6 25·7 | 8 19·5 | 6 19·6 | 7 19·1 | 8 7·5 | 6 6·5 | 1 14·6 |
| June 0 | 6 20·4 | 6 17·8 | 8 18·0 | 6 17·3 | 7 17·9 | 8 6·9 | 6 5·8 | 1 12·9 |
| July 0 | 6 18·4 | 6 22·0 | 8 14·6 | 6 16·0 | 7 16·8 | 8 6·1 | 6 5·5 | 1 11·3 |
| Aug. 0 | 6 27·7 | 7 4·7 | 8 11·0 | 6 16·2 | 7 16·0 | 8 5·3 | 6 5·8 | 1 9·7 |
| Sept. 0 | 7 13·5 | 7 22·7 | 8 9·7 | 6 17·9 | 7 16·0 | 8 5·0 | 6 6·6 | 1 8·0 |
| Oct. 0 | 8 2·6 | 8 13·0 | 8 11·1 | 6 20·4 | 7 16·7 | 8 5·1 | 6 7·6 | 1 6·5 |
| Nov. 0 | 8 24·5 | 9 5·5 | 8 15·2 | 6 24·1 | 7 18·2 | 8 5·8 | 6 8·6 | 1 4·8 |
| Dec. 0 | 9 16·9 | 9 28·3 | 8 20·9 | 6 27·6 | 7 19·9 | 8 6·7 | 6 9·7 | 1 3·2 |
| **1985** | | | | | | | | |
| Jan. 0 | 10 10·6 | 10 22·0 | 8 27·8 | 7 1·0 | 7 21·8 | 8 7·9 | 6 10·7 | 1 1·6 |
| Feb. 0 | 11 4·2 | 11 15·5 | 9 5·2 | 7 3·4 | 7 23·3 | 8 8·9 | 6 11·2 | 0 29·9 |
| Mar. 0 | 11 25·1 | 0 6·1 | 9 11·4 | 7 4·3 | 7 24·1 | 8 9·7 | 6 11·3 | 0 28·4 |
| Apr. 0 | 0 17·8 | 0 28·4 | 9 17·5 | 7 3·9 | 7 24·3 | 8 9·9 | 6 10·7 | 0 26·8 |
| May 0 | 1 8·9 | 1 19·3 | 9 21·7 | 7 2·2 | 7 23·7 | 8 9·7 | 6 9·8 | 0 25·2 |
| June 0 | 2 0·2 | 2 10·3 | 9 23·6 | 6 29·9 | 7 22·5 | 8 9·0 | 6 9·0 | 0 23·6 |
| July 0 | 2 20·3 | 3 0·0 | 9 22·7 | 6 28·2 | 7 21·3 | 8 8·2 | 6 8·5 | 0 22·0 |
| Aug. 0 | 3 10·4 | 3 20·0 | 9 19·3 | 6 27·7 | 7 20·5 | 8 7·5 | 6 8·6 | 0 20·4 |
| Sept. 0 | 4 0·2 | 4 9·8 | 9 15·6 | 6 28·8 | 7 20·3 | 8 7·1 | 6 9·1 | 0 18·7 |
| Oct. 0 | 4 19·3 | 4 28·6 | 9 13·8 | 7 1·1 | 7 21·0 | 8 7·3 | 6 10·1 | 0 17·1 |
| Nov. 0 | 5 8·7 | 5 18·1 | 9 15·1 | 7 4·3 | 7 22·3 | 8 7·9 | 6 11·2 | 0 15·5 |
| Dec. 0 | 5 27·4 | 6 6·7 | 9 18·9 | 7 7·9 | 7 24·0 | 8 8·8 | 6 12·3 | 0 13·9 |
| **1986** | | | | | | | | |
| Jan. 0 | 6 16·4 | 6 25·6 | 9 24·8 | 7 11·4 | 7 25·9 | 8 10·0 | 6 13·3 | 0 12·2 |
| Feb. 0 | 7 5·0 | 7 13·8 | 10 1·8 | 7 14·2 | 7 27·5 | 8 11·0 | 6 13·8 | 0 10·6 |
| Mar. 0 | 7 21·2 | 7 29·5 | 10 8·5 | 7 15·7 | 7 28·4 | 8 11·8 | 6 13·9 | 0 9·1 |
| Apr. 0 | 8 7·5 | 8 14·7 | 10 15·8 | 7 15·8 | 7 28·7 | 8 12·1 | 6 13·3 | 0 7·5 |
| May 0 | 8 20·6 | 8 25·2 | 10 22·0 | 7 14·5 | 7 28·2 | 8 11·9 | 6 12·5 | 0 5·9 |
| June 0 | 8 28·1 | 8 27·8 | 10 26·9 | 7 12·4 | 7 27·1 | 8 11·3 | 6 11·7 | 0 4·3 |
| July 0 | 8 25·2 | 8 20·9 | 10 29·5 | 7 10·4 | 7 25·9 | 8 10·5 | 6 11·1 | 0 2·7 |
| Aug. 0 | 8 17·3 | 8 16·5 | 10 29·2 | 7 9·3 | 7 25·0 | 8 9·7 | 6 11·2 | 0 1·0 |
| Sept. 0 | 8 19·0 | 8 24·1 | 10 26·2 | 7 9·7 | 7 24·7 | 8 9·3 | 6 11·7 | 11 29·4 |
| Oct. 0 | 9 1·2 | 9 9·1 | 10 22·3 | 7 11·7 | 7 25·2 | 8 9·4 | 6 12·6 | 11 27·8 |
| Nov. 0 | 9 18·8 | 9 28·5 | 10 19·9 | 7 14·5 | 7 26·4 | 8 10·0 | 6 13·7 | 11 26·1 |
| Dec. 0 | 10 8·6 | 10 18·9 | 10 20·6 | 7 18·0 | 7 28·1 | 8 10·9 | 6 14·8 | 11 24·5 |
| Dec. 31 | 11 0·1 | 11 10·7 | 10 24·1 | 7 21·6 | 8 0·0 | 8 12·2 | 6 15·8 | 11 22·9 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction Mercury | Days from Conjunction Venus |
|---|---|---|---|---|---|---|---|
| **1987** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Wed. | 8 15 20 | 8 13 21 | 0·23 | 29·824 | 108·3 | 346·1 |
| Feb. 0 | Sat. | 9 16 53 | 10 1 49 | 3·98 | 1·317 | 23·4 | 377·1 |
| Mar. 0 | Sat. | 10 15 11 | 10 10 45 | 4·47 | 29·762 | 51·4 | 405·1 |
| Apr. 0 | Tues. | 11 16 4 | 11 29 13 | 8·22 | 1·255 | 82·4 | 436·1 |
| May 0 | Thur. | 0 15 27 | 1 4 31 | 10·88 | 1·731 | 112·4 | 466·1 |
| June 0 | Sun. | 1 15 21 | 2 22 58 | 14·63 | 3·224 | 27·5 | 497·1 |
| July 0 | Tues. | 2 14 1 | 3 28 16 | 17·29 | 3·701 | 57·5 | 527·1 |
| Aug. 0 | Fri. | 3 13 36 | 5 16 44 | 21·05 | 5·194 | 88·5 | 558·1 |
| Sept. 0 | Mon. | 4 13 23 | 7 5 12 | 24·80 | 6·687 | 3·6 | 5·2 |
| Oct. 0 | Wed. | 5 12 37 | 8 10 30 | 27·46 | 7·164 | 33·6 | 35·2 |
| Nov. 0 | Sat. | 6 13 20 | 9 28 58 | 1·21 | 8·656 | 64·6 | 66·2 |
| Dec. 0 | Mon. | 7 13 33 | 11 4 15 | 3·87 | 9·133 | 94·6 | 96·2 |
| **1988** | | | | | | | |
| Jan. 0 | Thur. | 8 15 4 | 0 22 43 | 7·62 | 10·626 | 9·8 | 127·2 |
| Feb. 0 | Sun. | 9 16 38 | 2 11 11 | 11·38 | 12·119 | 40·8 | 158·2 |
| Mar. 0 | Mon. | 10 15 56 | 3 3 18 | 12·95 | 11·580 | 69·8 | 187·2 |
| Apr. 0 | Thur. | 11 16 48 | 4 21 46 | 16·70 | 13·072 | 100·8 | 218·2 |
| May 0 | Sat. | 0 16 10 | 5 27 4 | 19·36 | 13·549 | 14·9 | 248·2 |
| June 0 | Tues. | 1 16 4 | 7 15 32 | 23·11 | 15·042 | 45·9 | 279·2 |
| July 0 | Thur. | 2 14 44 | 8 20 49 | 25·78 | 15·519 | 75·9 | 309·2 |
| Aug. 0 | Sun. | 3 14 19 | 10 9 17 | 29·53 | 17·012 | 106·9 | 340·2 |
| Sept. 0 | Wed. | 4 14 6 | 11 27 45 | 3·28 | 18·505 | 22·0 | 371·2 |
| Oct. 0 | Fri. | 5 13 21 | 1 3 3 | 5·94 | 18·981 | 52·0 | 401·2 |
| Nov. 0 | Mon. | 6 14 5 | 2 21 31 | 9·69 | 20·474 | 83·0 | 432·2 |
| Dec. 0 | Wed. | 7 14 18 | 3 26 48 | 12·36 | 20·951 | 113·0 | 462·2 |
| **1989** | | | | | | | |
| Jan. 0 | Sat. | 8 15 50 | 5 15 16 | 16·11 | 22·444 | 28·1 | 493·2 |
| Feb. 0 | Tues. | 9 17 23 | 7 3 44 | 19·86 | 23·937 | 59·1 | 524·2 |
| Mar. 0 | Tues. | 10 15 40 | 7 12 40 | 20·34 | 22·382 | 87·1 | 552·2 |
| Apr. 0 | Fri. | 11 16 33 | 9 1 9 | 24·09 | 23 874 | 2·2 | 583·2 |
| May 0 | Sun. | 0 15 55 | 10 6 26 | 26·76 | 24·351 | 32·2 | 29·3 |
| June 0 | Wed. | 1 15 49 | 11 24 54 | 0·51 | 25·844 | 63·2 | 60·3 |
| July 0 | Fri. | 2 14 29 | 1 0 11 | 3·17 | 26·321 | 93·2 | 90·3 |
| Aug. 0 | Mon. | 3 14 4 | 2 18 39 | 6·92 | 27·814 | 8·4 | 121·3 |
| Sept. 0 | Thur. | 4 13 52 | 4 7 7 | 10·67 | 29·306 | 39·4 | 152·3 |
| Oct. 0 | Sat. | 5 13 6 | 5 12 25 | 13·34 | 29·783 | 69·4 | 182·3 |
| Nov. 0 | Tues. | 6 13 50 | 7 0 53 | 17·09 | 1·276 | 100·4 | 213·3 |
| Dec. 0 | Thur. | 7 14 2 | 8 6 10 | 19·75 | 1·753 | 14·5 | 243·3 |
| **1990** | | | | | | | |
| Jan. 0 | Sun. | 8 15 34 | 9 24 38 | 23·50 | 3·246 | 45·5 | 274·3 |
| Feb. 0 | Wed. | 9 17 8 | 11 13 6 | 27·25 | 4·739 | 76·5 | 305·3 |
| Mar. 0 | Wed. | 10 15 25 | 11 22 3 | 27·74 | 3·184 | 104·5 | 333·3 |
| Apr. 0 | Sat. | 11 16 18 | 1 10 31 | 1 49 | 4·676 | 19·6 | 364·3 |
| May 0 | Mon. | 0 15 41 | 2 15 48 | 4·15 | 5·153 | 49·6 | 394·3 |
| June 0 | Thur. | 1 15 35 | 4 4 16 | 7·90 | 6·646 | 80·6 | 425·3 |
| July 0 | Sat. | 2 14 14 | 5 9 34 | 10·56 | 7·123 | 110·6 | 455·3 |
| Aug. 0 | Tues. | 3 13 49 | 6 28 2 | 14·32 | 8·616 | 25·7 | 486·3 |
| Sept. 0 | Fri. | 4 13 37 | 8 16 30 | 18·07 | 10·108 | 56·7 | 517·3 |
| Oct. 0 | Sun. | 5 12 51 | 9 21 47 | 20·73 | 10·585 | 86·7 | 547·3 |
| Nov. 0 | Wed. | 6 13 34 | 11 10 15 | 24·48 | 12·078 | 1·9 | 578·3 |
| Dec. 0 | Fri. | 7 13 47 | 0 15 32 | 27·14 | 12·555 | 31·9 | 24·4 |
| Dec. 31 | Mon. | 8 15 18 | 2 4 1 | 0·89 | 14·048 | 62·9 | 55·4 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1987** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 11 0·1 | 11 10·7 | 10 24·1 | 7 21·6 | 8 0·0 | 8 12·2 | 6 15·8 | 11 22·9 |
| Feb. 0 | 11 22·0 | 0 2·3 | 10 29·9 | 7 24·5 | 8 1·6 | 8 13·2 | 6 16·3 | 11 21·3 |
| Mar. 0 | 0 11·5 | 0 21·6 | 11 6·1 | 7 26·6 | 8 2·6 | 8 14·1 | 6 16·4 | 11 19·7 |
| Apr. 0 | 1 2·5 | 1 12·6 | 11 13·6 | 7 27·4 | 8 3·0 | 8 14·4 | 6 15·8 | 11 18·1 |
| May 0 | 1 22·6 | 2 2·4 | 11 20·7 | 7 26·6 | 8 2·6 | 8 14·3 | 6 15·0 | 11 16·5 |
| June 0 | 2 13·0 | 2 22·7 | 11 27·5 | 7 24·7 | 8 1·6 | 8 13·6 | 6 14·2 | 11 14·9 |
| July 0 | 3 2·2 | 3 11·9 | 0 2·6 | 7 22·6 | 8 0·4 | 8 12·8 | 6 13·6 | 11 13·3 |
| Aug. 0 | 3 22·0 | 4 1·6 | 0 6·0 | 7 21·0 | 7 29·6 | 8 12·1 | 6 13·7 | 11 11·6 |
| Sept. 0 | 4 11·8 | 4 21·3 | 0 6·5 | 7 20·9 | 7 29·0 | 8 11·5 | 6 14·2 | 11 10·0 |
| Oct. 0 | 5 1·0 | 5 10·5 | 0 4·0 | 7 22·2 | 7 29·4 | 8 11·4 | 6 15·1 | 11 8·4 |
| Nov. 0 | 5 20·9 | 6 0·7 | 0 0·0 | 7 24·7 | 8 0·6 | 8 12·2 | 6 16·2 | 11 6·8 |
| Dec. 0 | 6 10·4 | 6 20·2 | 11 27·0 | 7 28·0 | 8 2·2 | 8 13·0 | 6 17·3 | 11 5·2 |
| **1988** | | | | | | | | |
| Jan. 0 | 7 0·7 | 7 10·6 | 11 27·1 | 8 1·7 | 8 4·0 | 8 14·3 | 6 18·3 | 11 3·5 |
| Feb. 0 | 7 21·4 | 8 1·3 | 0 0·1 | 8 5·0 | 8 5·7 | 8 15·3 | 6 18·8 | 11 1·9 |
| Mar. 0 | 8 10·7 | 8 20·8 | 0 5·0 | 8 7·3 | 8 6·8 | 8 16·2 | 6 18·9 | 11 0·4 |
| Apr. 0 | 9 1·5 | 9 11·4 | 0 11·7 | 8 8·7 | 8 7·3 | 8 16·6 | 6 18·7 | 10 28·7 |
| May 0 | 9 21·4 | 10 1·3 | 0 18·8 | 8 8·4 | 8 7·0 | 8 16·5 | 6 17·5 | 10 27·1 |
| June 0 | 10 11·2 | 10 20·3 | 0 26·0 | 8 6·8 | 8 6·1 | 8 16·0 | 6 16·7 | 10 25·5 |
| July 0 | 10 28·7 | 11 6·0 | 1 2·6 | 8 4·6 | 8 4·9 | 8 15·2 | 6 16·1 | 10 23·9 |
| Aug. 0 | 11 12·1 | 11 15·5 | 1 8·3 | 8 2·8 | 8 3·8 | 8 14·3 | 6 16·2 | 10 22·3 |
| Sept. 0 | 11 15·9 | 11 13·4 | 1 11·9 | 8 2·1 | 8 3·3 | 8 13·8 | 6 16·7 | 10 20·6 |
| Oct. 0 | 11 9·1 | 11 5·6 | 1 12·8 | 8 2·9 | 8 3·6 | 8 13·8 | 6 17·6 | 10 19·0 |
| Nov. 0 | 11 5·1 | 11 7·3 | 1 10·8 | 8 5·1 | 8 4·7 | 8 14·3 | 6 18·7 | 10 17·4 |
| Dec. 0 | 11 11·8 | 11 17·9 | 1 6·9 | 8 8·2 | 8 6·3 | 8 15·1 | 6 19·8 | 10 15·8 |
| **1989** | | | | | | | | |
| Jan. 0 | 11 25·6 | 0 3·7 | 1 3·6 | 8 11·8 | 8 8·1 | 8 16·4 | 6 20·8 | 10 14·2 |
| Feb. 0 | 0 12·8 | 0 21·7 | 1 3·0 | 8 15·3 | 8 9·8 | 8 17·4 | 6 21·3 | 10 12·5 |
| Mar. 0 | 0 29·5 | 1 8·6 | 1 6·0 | 8 17·9 | 8 11·0 | 8 18·3 | 6 21·4 | 10 11·0 |
| Apr. 0 | 1 18·4 | 1 27·7 | 1 9·9 | 8 19·7 | 8 11·6 | 8 18·6 | 6 20·8 | 10 9·4 |
| May 0 | 2 7·0 | 2 16·4 | 1 16·0 | 8 20·0 | 8 11·4 | 8 18·5 | 6 20·0 | 10 7·8 |
| June 0 | 2 26·3 | 3 5·6 | 1 23·0 | 8 18·9 | 8 10·5 | 8 17·8 | 6 19·2 | 10 6·2 |
| July 0 | 3 14·9 | 3 24·4 | 1 29·9 | 8 16·9 | 8 9·3 | 8 17·0 | 6 18·6 | 10 4·6 |
| Aug. 0 | 4 4·3 | 4 13·9 | 2 6·7 | 8 14·8 | 8 8·2 | 8 16·3 | 6 18·7 | 10 2·9 |
| Sept. 0 | 4 24·0 | 5 3·5 | 2 12·3 | 8 13·5 | 8 7·6 | 8 15·7 | 6 19·2 | 10 1·3 |
| Oct. 0 | 5 13·3 | 5 23·2 | 2 16·0 | 8 13·8 | 8 7·8 | 8 15·6 | 6 20·1 | 9 29·7 |
| Nov. 0 | 6 3·7 | 6 13·8 | 2 17·4 | 8 15·4 | 8 8·8 | 8 16·4 | 6 21·2 | 9 28·1 |
| Dec. 0 | 6 23·9 | 7 4·2 | 2 15·7 | 8 18·3 | 8 10·3 | 8 17·2 | 6 22·2 | 9 26·5 |
| **1990** | | | | | | | | |
| Jan. 0 | 7 15·3 | 7 25·9 | 2 11·9 | 8 21·8 | 8 12·1 | 8 18·5 | 6 23·2 | 9 24·8 |
| Feb. 0 | 8 7·3 | 8 18·1 | 2 8·4 | 8 25·4 | 8 13·8 | 8 19·5 | 6 23·7 | 9 23·2 |
| Mar. 0 | 8 27·6 | 9 8·6 | 2 7·4 | 8 28·2 | 8 15·1 | 8 20·4 | 6 23·8 | 9 21·7 |
| Apr. 0 | 9 20·5 | 10 1·8 | 2 9·1 | 9 0·6 | 8 15·8 | 8 20·8 | 6 23·2 | 9 20·1 |
| May 0 | 10 12·8 | 10 24·0 | 2 13·3 | 9 1·5 | 8 15·7 | 7 20·7 | 6 22·4 | 9 18·5 |
| June 0 | 11 5·7 | 11 16·6 | 2 19·1 | 9 0·9 | 8 14·9 | 8 20·2 | 6 21·6 | 9 16·8 |
| July 0 | 11 27·4 | 0 7·6 | 2 25·5 | 8 29·1 | 8 13·8 | 4 19·4 | 6 21·1 | 9 15·2 |
| Aug. 0 | 0 18·0 | 0 27·1 | 3 2·5 | 8 26·9 | 8 12·6 | 8 18·5 | 6 21·1 | 9 13·6 |
| Sept. 0 | 1 5·8 | 1 12·6 | 3 9·0 | 8 25·3 | 8 11·9 | 8 18·0 | 6 21·6 | 9 11·9 |
| Oct. 0 | 1 17·4 | 1 20·2 | 3 14·6 | 8 24·9 | 8 12·0 | 8 18·0 | 6 22·5 | 9 10·3 |
| Nov. 0 | 1 19·5 | 1 15·7 | 3 18·5 | 8 26·1 | 8 12·8 | 8 18·5 | 6 23·6 | 9 8·7 |
| Dec. 0 | 1 10·2 | 1 5·5 | 3 20·1 | 8 28·5 | 8 14·2 | 8 19·3 | 6 24·7 | 9 7·1 |
| Dec. 31 | 1 3·7 | 1 5·0 | 3 18·5 | 9 1·8 | 8 16·0 | 8 20·4 | 6 25·7 | 9 5·5 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **1991** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Mon. | 8 15 18 | 2 4 1 | 0·89 | 14·048 | 62·9 | 55·4 |
| Feb. 0 | Thur. | 9 16 52 | 3 22 29 | 4·65 | 15·540 | 93·9 | 86·4 |
| Mar. 0 | Thur. | 10 15 9 | 4 1 25 | 5·13 | 13·986 | 6·0 | 114·4 |
| Apr. 0 | Sun. | 11 16 3 | 5 19 53 | 8·88 | 15·478 | 37·0 | 145·4 |
| May 0 | Tues. | 0 15 26 | 6 25 10 | 11·54 | 15·955 | 67·0 | 175·4 |
| June 0 | Fri. | 1 15 20 | 8 13 38 | 15·30 | 17·448 | 98·0 | 206·4 |
| July 0 | Sun. | 2 14 0 | 9 18 56 | 17·96 | 17·925 | 12·1 | 236·4 |
| Aug. 0 | Wed. | 3 13 34 | 11 7 24 | 21·71 | 19·418 | 43·1 | 267·4 |
| Sept. 0 | Sat. | 4 13 22 | 0 25 52 | 25·46 | 20·910 | 74·1 | 298·4 |
| Oct. 0 | Mon. | 5 12 36 | 2 1 9 | 28·12 | 21·387 | 104·1 | 328·4 |
| Nov. 0 | Thur. | 6 13 19 | 3 19 37 | 1·88 | 22·880 | 19·2 | 359·4 |
| Dec. 0 | Sat. | 7 13 31 | 4 24 55 | 4·54 | 23·357 | 49·2 | 389·4 |
| **1992** | | | | | | | |
| Jan. 0 | Tues. | 8 15 3 | 6 13 23 | 8·29 | 24·850 | 80·2 | 420·4 |
| Feb. 0 | Fri. | 9 16 36 | 8 1 51 | 12·04 | 26·342 | 111·2 | 451·4 |
| Mar. 0 | Sat. | 10 15 54 | 8 23 58 | 13·61 | 25·803 | 24·2 | 480·4 |
| Apr. 0 | Tues. | 11 16 47 | 10 12 26 | 17·36 | 27·296 | 55·3 | 511·4 |
| May 0 | Thur. | 0 16 9 | 11 17 43 | 20·03 | 27·773 | 85·3 | 541·4 |
| June 0 | Sun. | 1 16 3 | 1 6 11 | 23·78 | 29·266 | 0·5 | 572·4 |
| July 0 | Tues. | 2 14 42 | 2 11 29 | 26·44 | 29·743 | 30·5 | 18·5 |
| Aug. 0 | Fri. | 3 14 17 | 3 29 57 | 0·19 | 1·235 | 61·5 | 49·5 |
| Sept. 0 | Mon. | 4 14 5 | 5 18 25 | 3·94 | 2·728 | 92·5 | 80·5 |
| Oct. 0 | Wed. | 5 13 19 | 6 23 42 | 6·60 | 3·205 | 6·6 | 110·5 |
| Nov. 0 | Sat. | 6 14 4 | 8 12 10 | 10·36 | 4·698 | 37·6 | 141·5 |
| Dec. 0 | Mon. | 7 14 16 | 9 17 28 | 13·02 | 5·175 | 67·6 | 171·5 |
| **1993** | | | | | | | |
| Jan. 0 | Thur. | 8 15 48 | 11 5 56 | 16·77 | 6·668 | 98·6 | 202·5 |
| Feb. 0 | Sun. | 9 17 22 | 0 24 24 | 20·52 | 8·160 | 13·7 | 233·5 |
| Mar. 0 | Sun. | 10 15 39 | 1 3 20 | 21·01 | 6·605 | 41·7 | 261·5 |
| Apr. 0 | Wed. | 11 16 32 | 2 21 48 | 24·76 | 8·098 | 72·7 | 292·5 |
| May 0 | Fri. | 0 15 54 | 2 27 6 | 27·42 | 8·575 | 102·7 | 322·5 |
| June 0 | Mon. | 1 15 48 | 5 15 34 | 1·17 | 10·068 | 17·8 | 353·5 |
| July 0 | Wed. | 2 14 28 | 6 20 51 | 3·83 | 10·545 | 47·8 | 383·5 |
| Aug. 0 | Sat. | 3 14 2 | 8 9 19 | 7·58 | 12·037 | 78·8 | 414·5 |
| Sept. 0 | Tues. | 4 13 50 | 9 27 47 | 11·34 | 13·530 | 109·8 | 445·5 |
| Oct. 0 | Thur | 5 13 4 | 11 3 4 | 14·00 | 14·007 | 24·0 | 475·5 |
| Nov. 0 | Sun. | 6 13 48 | 0 21 33 | 17·75 | 15·500 | 55·0 | 506·5 |
| Dec. 0 | Tues. | 7 14 1 | 1 26 50 | 20·41 | 15·977 | 85·0 | 536·5 |
| **1994** | | | | | | | |
| Jan. 0 | Fri. | 8 15 32 | 3 15 18 | 24·16 | 17·469 | 0·1 | 567·5 |
| Feb. 0 | Mon. | 9 17 6 | 5 3 46 | 27·91 | 18·962 | 31·1 | 14·5 |
| Mar. 0 | Mon. | 10 15 23 | 5 12 42 | 28·40 | 17·407 | 59·1 | 42·5 |
| Apr. 0 | Thur. | 11 16 16 | 7 1 10 | 2·15 | 18·900 | 90·1 | 73·5 |
| May 0 | Sat. | 0 15 39 | 8 6 28 | 4·81 | 19·377 | 4·2 | 103·5 |
| June 0 | Tues. | 1 15 33 | 9 24 56 | 8·56 | 20·870 | 35·2 | 134·5 |
| July 0 | Thur. | 2 14 13 | 11 0 13 | 11·23 | 21·347 | 65·2 | 164·5 |
| Aug. 0 | Sun. | 3 13 48 | 0 18 41 | 14·98 | 22·839 | 96·2 | 195·5 |
| Sept. 0 | Wed. | 4 13 35 | 2 7 9 | 18·73 | 24·332 | 11·3 | 226·5 |
| Oct. 0 | Fri. | 5 12 49 | 3 12 27 | 21·39 | 24·809 | 41·3 | 256·5 |
| Nov. 0 | Mon. | 6 13 33 | 5 0 55 | 25·14 | 26·302 | 72·3 | 287·5 |
| Dec. 0 | Wed. | 7 13 45 | 6 6 12 | 27·81 | 26·779 | 102·3 | 317·5 |
| Dec. 31 | Sat. | 8 15 17 | 7 24 40 | 1·56 | 28·271 | 17·5 | 348·5 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1991** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 1 3·7 | 1 5·0 | 3 18·5 | 9 1·8 | 8 16·0 | 8 20·4 | 6 25·7 | 9 5·5 |
| Feb. 0 | 1 8·7 | 1 14·0 | 3 14·7 | 9 5·4 | 8 17·8 | 8 21·5 | 6 26·5 | 9 3·8 |
| Mar. 0 | 1 19·6 | 1 26·6 | 3 11·3 | 9 8·5 | 8 19·1 | 8 22·5 | 6 26·8 | 9 2·3 |
| Apr. 0 | 2 4·8 | 2 12·9 | 3 9·9 | 9 11·3 | 8 19·9 | 8 23·0 | 6 26·6 | 9 0·7 |
| May 0 | 2 21·2 | 2 29·8 | 3 11·3 | 9 12·7 | 8 20·0 | 8 23·0 | 6 25·8 | 8 29·1 |
| June 0 | 3 9·1 | 3 18·0 | 3 15·2 | 9 12·8 | 8 19·3 | 8 22·6 | 6 25·0 | 8 27·4 |
| July 0 | 3 27·1 | 4 6·2 | 3 20·5 | 9 11·5 | 8 18·2 | 8 21·8 | 6 24·3 | 8 25·8 |
| Aug. 0 | 4 16·1 | 4 25·5 | 3 27·0 | 9 9·2 | 8 17·0 | 8 21·0 | 6 24·0 | 8 24·2 |
| Sept. 0 | 5 5·7 | 5 15·5 | 4 3·7 | 9 7·2 | 8 16·2 | 8 20·4 | 6 24·3 | 8 22·6 |
| Oct. 0 | 5 25·3 | 6 5·3 | 4 10·1 | 9 6·3 | 8 16·1 | 8 20·3 | 6 25·1 | 8 21·0 |
| Nov. 0 | 6 16·1 | 6 26·4 | 4 15·6 | 9 6·9 | 8 16·9 | 8 20·7 | 6 26·0 | 8 19·3 |
| Dec. 0 | 7 7·1 | 7 17·8 | 4 19·3 | 9 8·9 | 8 18·2 | 8 21·4 | 6 27·1 | 8 17·7 |
| **1992** | | | | | | | | |
| Jan. 0 | 7 29·4 | 8 10·4 | 4 20·8 | 9 12·0 | 8 20·0 | 8 22·5 | 6 28·1 | 8 16·1 |
| Feb. 0 | 8 22·4 | 9 3·8 | 4 19·3 | 9 15·6 | 8 21·8 | 8 23·6 | 6 28·8 | 8 14·5 |
| Mar. 0 | 9 14·5 | 9 26·0 | 4 15·9 | 9 18·9 | 8 23·2 | 8 24·6 | 6 29·1 | 8 13·0 |
| Apr. 0 | 10 8·4 | 10 20·0 | 4 12·3 | 9 22·0 | 8 24·1 | 8 25·1 | 6 29·0 | 8 11·3 |
| May 0 | 11 1·6 | 11 13·1 | 4 10·9 | 9 23·9 | 8 24·2 | 8 25·2 | 6 28·2 | 8 9·7 |
| June 0 | 11 25·2 | 0 6·3 | 4 12·2 | 9 24·5 | 8 23·6 | 8 24·8 | 6 27·4 | 8 8·1 |
| July 0 | 0 17·3 | 0 28·0 | 4 15·9 | 9 23·7 | 8 22·5 | 8 24·0 | 6 26·7 | 8 6·5 |
| Aug. 0 | 1 9·1 | 1 19·0 | 4 21·2 | 9 21·7 | 8 21·3 | 8 23·2 | 6 26·4 | 8 4·9 |
| Sept. 0 | 1 29·1 | 2 7·8 | 4 27·6 | 9 19·5 | 8 20·4 | 8 22·6 | 6 26·7 | 8 3·2 |
| Oct. 0 | 2 15·8 | 2 22·9 | 5 4·0 | 9 18·1 | 8 20·3 | 8 22·4 | 6 27·5 | 8 1·6 |
| Nov. 0 | 2 29·0 | 3 2·6 | 5 10·4 | 9 18·1 | 8 20·9 | 8 22·8 | 6 28·5 | 8 0·0 |
| Dec. 0 | 3 3·8 | 3 2·0 | 5 15·8 | 9 19·5 | 8 22·2 | 8 23·5 | 6 29·6 | 7 28·4 |
| **1993** | | | | | | | | |
| Jan. 0 | 2 27·0 | 2 21·2 | 5 19·6 | 9 22·4 | 8 23·9 | 8 24·6 | 7 0·5 | 7 26·7 |
| Feb. 0 | 2 16·6 | 2 15·1 | 5 20·9 | 9 25·9 | 8 25·7 | 8 25·7 | 7 1·3 | 7 25·1 |
| Mar. 0 | 2 16·1 | 2 19·2 | 5 19·5 | 9 29·3 | 8 27·1 | 8 26·7 | 7 1·6 | 7 23·6 |
| Apr. 0 | 2 24·5 | 3 0·5 | 5 15·3 | 10 2·6 | 8 28·1 | 8 27·2 | 7 1·5 | 7 22·0 |
| May 0 | 3 7·3 | 3 14·9 | 5 12·5 | 10 5·1 | 8 28·4 | 8 27·2 | 7 0·7 | 7 20·4 |
| June 0 | 3 23·4 | 4 1·7 | 5 10·9 | 10 6·3 | 8 27·9 | 8 26·8 | 6 29·9 | 7 18·7 |
| July 0 | 4 10·4 | 4 19·3 | 5 12·2 | 10 5·9 | 8 26·8 | 8 26·0 | 6 29·2 | 7 17·1 |
| Aug. 0 | 4 29·0 | 5 8·4 | 5 15·8 | 10 4·3 | 8 25·6 | 8 25·2 | 6 28·9 | 7 15·5 |
| Sept. 0 | 5 16·5 | 5 28·4 | 5 21·2 | 10 2·1 | 8 24·7 | 8 24·6 | 6 29·2 | 7 13·9 |
| Oct. 0 | 6 8·3 | 6 18·6 | 5 27·3 | 10 0·3 | 8 24·4 | 8 24·5 | 7 0·0 | 7 12·3 |
| Nov. 0 | 6 29·7 | 7 10·5 | 6 4·1 | 9 29·7 | 8 25·0 | 8 24·9 | 7 0·9 | 7 10·7 |
| Dec. 0 | 7 21·4 | 8 2·4 | 6 10·3 | 10 0·6 | 8 26·1 | 8 25·6 | 7 2·0 | 7 9·1 |
| **1994** | | | | | | | | |
| Jan. 0 | 8 14·5 | 8 26·1 | 6 15·8 | 10 3·0 | 8 27·8 | 8 26·7 | 7 3·0 | 7 7·4 |
| Feb. 0 | 9 8·3 | 9 18·4 | 6 19·6 | 10 6·4 | 8 29·6 | 8 27·8 | 7 3·8 | 7 5·8 |
| Mar. 0 | 10 0·2 | 10 12·0 | 6 20·8 | 10 9·7 | 9 1·1 | 8 28·8 | 7 4·1 | 7 4·3 |
| Apr. 0 | 10 24·6 | 11 6·4 | 6 19·4 | 10 13·3 | 9 2·2 | 8 29·3 | 7 3·9 | 7 2·6 |
| May 0 | 11 18·0 | 11 29·4 | 6 16·1 | 10 16·2 | 9 2·5 | 8 29·4 | 7 3·1 | 7 1·0 |
| June 0 | 0 11·5 | 0 22·5 | 6 12·4 | 10 18·0 | 9 2·1 | 8 29·0 | 7 2·3 | 6 29·4 |
| July 0 | 1 3·4 | 1 14·0 | 6 11·0 | 10 18·3 | 9 1·1 | 8 28·2 | 7 1·6 | 6 27·8 |
| Aug. 0 | 1 25·1 | 2 5·2 | 6 12·2 | 10 17·2 | 8 29·9 | 8 27·4 | 7 1·3 | 6 26·2 |
| Sept. 0 | 2 15·5 | 2 24·8 | 6 16·0 | 10 15·0 | 8 28·9 | 8 26·8 | 7 1·6 | 6 24·5 |
| Oct. 0 | 3 3·7 | 3 12·2 | 6 21·1 | 10 12·9 | 8 28·6 | 8 26·6 | 7 2·4 | 6 22·9 |
| Nov. 0 | 3 20·3 | 3 27·2 | 6 27·6 | 10 11·7 | 8 29·0 | 8 27·0 | 7 3·4 | 6 21·3 |
| Dec. 0 | 4 2·9 | 4 7·0 | 7 4·3 | 10 12·1 | 9 0·1 | 8 27·7 | 7 4·5 | 6 19·7 |
| Dec. 31 | 4 9·3 | 4 8·0 | 7 10·8 | 10 14·0 | 9 1·7 | 8 28·8 | 7 5·5 | 6 18·1 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1995** | | s ° ' | s ° ' | | | d | d |
| Jan. 0 | Sat. | 8 15 17 | 7 24 40 | 1·56 | 28·271 | 17·5 | 348·5 |
| Feb. 0 | Tues. | 9 16 50 | 9 13 8 | 5·31 | 29·764 | 48·5 | 379·5 |
| Mar. 0 | Tues. | 10 15 8 | 9 22 5 | 5·79 | 28·209 | 76·5 | 407·5 |
| Apr. 0 | Fri. | 11 16 1 | 11 10 33 | 9·54 | 29·702 | 107·5 | 438·5 |
| May 0 | Sun. | 0 15 24 | 0 15 50 | 12·21 | 0·179 | 21·6 | 468·5 |
| June 0 | Wed. | 1 15 18 | 2 4 18 | 15·96 | 1·672 | 52·6 | 499·5 |
| July 0 | Fri. | 2 13 58 | 3 9 35 | 18·62 | 2·149 | 82·6 | 529·5 |
| Aug. 0 | Mon. | 3 13 33 | 4 28 4 | 22·37 | 3·641 | 113·6 | 560·5 |
| Sept. 0 | Thur. | 4 13 20 | 6 16 32 | 26·12 | 5·134 | 28·7 | 7·6 |
| Oct. 0 | Sat. | 5 12 34 | 7 21 49 | 28·79 | 5·611 | 58·7 | 37·6 |
| Nov. 0 | Tues. | 6 13 17 | 9 10 17 | 2·54 | 7·104 | 89·7 | 68·6 |
| Dec. 0 | Thur. | 7 13 30 | 10 15 34 | 5·20 | 7·581 | 3·8 | 98·6 |
| **1996** | | | | | | | |
| Jan. 0 | Sun. | 8 15 1 | 0 4 2 | 8·95 | 9·073 | 34·8 | 129·6 |
| Feb. 0 | Wed. | 9 16 35 | 1 22 31 | 12·70 | 10·566 | 65·8 | 160·6 |
| Mar. 0 | Thur. | 10 15 53 | 2 14 37 | 14·28 | 10·027 | 94·8 | 189·6 |
| Apr. 0 | Sun. | 11 16 45 | 4 3 5 | 18·03 | 11·520 | 9·9 | 220·6 |
| May 0 | Tues. | 0 16 7 | 5 8 23 | 20·69 | 11·997 | 39·9 | 250·6 |
| June 0 | Fri. | 1 16 1 | 6 26 51 | 24·44 | 13·490 | 70·9 | 281·6 |
| July 0 | Sun. | 2 14 41 | 8 2 8 | 27·10 | 13·966 | 100·9 | 311·6 |
| Aug. 0 | Wed. | 3 14 16 | 9 20 36 | 0·85 | 15·459 | 16·1 | 342·6 |
| Sept. 0 | Sat. | 4 14 4 | 11 9 4 | 4·61 | 16·952 | 47·1 | 373·6 |
| Oct. 0 | Mon. | 5 13 18 | 0 14 22 | 7·27 | 17·429 | 77·1 | 403·6 |
| Nov. 0 | Thur. | 6 14 2 | 2 2 50 | 11·02 | 18·922 | 108·1 | 434·6 |
| Dec. 0 | Sat. | 7 14 15 | 3 8 7 | 13·68 | 19·398 | 22·2 | 464·6 |
| **1997** | | | | | | | |
| Jan. 0 | Tues. | 8 15 46 | 4 26 35 | 17·43 | 20·891 | 53·2 | 495·6 |
| Feb. 0 | Fri. | 9 17 20 | 6 15 3 | 21·18 | 22·384 | 84·2 | 526·6 |
| Mar. 0 | Fri. | 10 15 37 | 6 24 0 | 21·67 | 20·829 | 112·2 | 554·6 |
| Apr. 0 | Mon. | 11 16 30 | 8 12 28 | 25·42 | 22·322 | 27·3 | 1·7 |
| May 0 | Wed | 0 15 52 | 9 17 45 | 28·08 | 22·799 | 57·3 | 31·7 |
| June 0 | Sat. | 1 15 46 | 11 6 13 | 1·83 | 24·291 | 88·3 | 62·7 |
| July 0 | Mon. | 2 14 26 | 0 11 31 | 4·50 | 24·768 | 2·4 | 92·7 |
| Aug. 0 | Thur. | 3 14 1 | 1 29 59 | 8·25 | 26·261 | 33·4 | 123·7 |
| Sept. 0 | Sun. | 4 13 49 | 3 18 27 | 12·00 | 27·754 | 64·4 | 154·7 |
| Oct. 0 | Tues. | 5 13 3 | 4 23 44 | 14·66 | 28·231 | 94·4 | 184·7 |
| Nov. 0 | Fri. | 6 13 47 | 6 12 12 | 18·41 | 29·724 | 9·6 | 215·7 |
| Dec. 0 | Sun. | 7 13 59 | 7 17 30 | 21·08 | 0·200 | 39·6 | 245·7 |
| **1998** | | | | | | | |
| Jan. 0 | Wed. | 8 15 31 | 9 5 58 | 24·83 | 1·693 | 70·6 | 276·7 |
| Feb. 0 | Sat. | 9 17 4 | 10 24 26 | 28·58 | 3·186 | 101·6 | 307·7 |
| Mar. 0 | Sat. | 10 15 22 | 11 3 22 | 29·06 | 1·631 | 13·7 | 335·7 |
| Apr. 0 | Tues. | 11 16 15 | 0 21 50 | 2·81 | 3·124 | 44·7 | 366·7 |
| May 0 | Thur. | 0 15 38 | 1 27 7 | 5·48 | 3·601 | 74·7 | 396·7 |
| June 0 | Sun. | 1 15 32 | 3 15 35 | 9·23 | 5·093 | 105·7 | 427·7 |
| July 0 | Tues. | 2 14 11 | 4 20 53 | 11·89 | 5·570 | 19·8 | 457·7 |
| Aug. 0 | Fri. | 3 13 46 | 6 9 21 | 15·64 | 7·063 | 50·8 | 488·7 |
| Sept. 0 | Mon. | 4 13 34 | 7 27 49 | 19·39 | 8·556 | 81·8 | 519·7 |
| Oct. 0 | Wed. | 5 12 48 | 9 3 6 | 22·06 | 9.033 | 111·8 | 549·7 |
| Nov. 0 | Sat. | 6 13 31 | 10 21 34 | 25·81 | 10·525 | 26·9 | 580·7 |
| Dec. 0 | Mon. | 7 13 44 | 11 26 52 | 28·47 | 11·002 | 56·9 | 26·8 |
| Dec. 31 | Thur. | 8 15 15 | 1 15 20 | 2·22 | 12·495 | 87·9 | 57·8 |

## Planets: 1995-1998

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1995** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 4 9·3 | 4 8·0 | 7 10·8 | 10 14·0 | 9 1·7 | 8 28·8 | 7 5·5 | 6 18·1 |
| Feb. 0 | 4 3·9 | 3 28·2 | 7 16·5 | 10 17·1 | 9 3·5 | 9 0·0 | 7 6·3 | 6 16·4 |
| Mar. 0 | 3 23·5 | 3 20·3 | 7 20·1 | 10 20·3 | 9 5·0 | 9 1·0 | 7 6·6 | 6 14·9 |
| Apr. 0 | 3 19·8 | 3 21·9 | 7 21·7 | 10 24·1 | 9 6·2 | 9 1·6 | 7 6·4 | 6 13·2 |
| May 0 | 3 26·3 | 4 1·9 | 7 20·5 | 10 27·3 | 9 6·6 | 9 1·7 | 7 5·6 | 6 11·6 |
| June 0 | 4 9·0 | 4 16·3 | 7 17·0 | 10 29·6 | 9 6·3 | 9 1·4 | 7 4·8 | 6 10·0 |
| July 0 | 4 24·2 | 5 2·7 | 7 13·4 | 11 0·6 | 9 5·4 | 9 0·7 | 7 4·1 | 6 8·4 |
| Aug. 0 | 5 12·2 | 5 21·3 | 7 11·8 | 11 0·3 | 9 4·2 | 8 29·9 | 7 3·8 | 6 6·8 |
| Sept. 0 | 6 1·6 | 6 11·4 | 7 13·1 | 10 28·3 | 9 3·2 | 8 29·2 | 7 4·1 | 6 5·1 |
| Oct. 0 | 6 21·6 | 7 2·1 | 7 16·7 | 10 26·2 | 9 2·7 | 8 29·0 | 7 4·9 | 6 3·5 |
| Nov. 0 | 7 13·5 | 7 24·5 | 7 22·2 | 10 24·3 | 9 3·0 | 8 29·2 | 7 5·8 | 6 1·9 |
| Dec. 0 | 8 5·7 | 8 17·1 | 7 28·6 | 10 24·0 | 9 4·0 | 8 29·9 | 7 6·9 | 6 0·3 |
| **1996** | | | | | | | | |
| Jan. 0 | 8 29·6 | 9 12·0 | 8 5·7 | 10 25·3 | 9 5·6 | 9 0·9 | 7 7·9 | 5 28·7 |
| Feb. 0 | 9 23·8 | 10 5·7 | 8 12·5 | 10 28·0 | 9 7·4 | 9 2·1 | 7 8·7 | 5 27·0 |
| Mar. 0 | 10 16·8 | 10 28·6 | 8 18·0 | 11 1·3 | 9 8·9 | 9 3·1 | 7 9·0 | 5 25·5 |
| Apr. 0 | 11 11·1 | 11 22·7 | 8 22·3 | 11 5·1 | 9 10·2 | 9 3·7 | 7 8·8 | 5 23·9 |
| May 0 | 0 4·0 | 0 15·3 | 8 24·1 | 11 8·6 | 9 10·7 | 9 3·9 | 7 8·0 | 5 22·3 |
| June 0 | 0 27·0 | 1 8·0 | 8 23·0 | 11 11·4 | 9 10·5 | 9 3·6 | 7 7·2 | 5 20·7 |
| July 0 | 1 18·6 | 1 28·9 | 8 19·8 | 11 13·0 | 9 9·7 | 9 2·9 | 7 6·5 | 5 19·1 |
| Aug. 0 | 2 9·9 | 2 19·8 | 8 16·0 | 11 13·1 | 9 8·4 | 9 2·1 | 7 6·2 | 5 17·4 |
| Sept. 0 | 3 0·2 | 3 9·7 | 8 14·3 | 11 11·7 | 9 7·4 | 9 1·4 | 7 6·5 | 5 15·8 |
| Oct. 0 | 3 18·9 | 3 27·7 | 8 15·4 | 11 9·6 | 9 6·8 | 9 1·1 | 7 7·3 | 5 14·2 |
| Nov. 0 | 4 6·9 | 4 14·9 | 8 19·1 | 11 7·4 | 9 7·0 | 9 1·3 | 7 8·2 | 5 12·6 |
| Dec. 0 | 4 22·5 | 4 29·2 | 8 24·6 | 11 6·5 | 9 7·9 | 9 2·0 | 7 9·2 | 5 11·0 |
| **1997** | | | | | | | | |
| Jan. 0 | 5 5·4 | 5 9·7 | 9 1·5 | 11 7·2 | 9 9·5 | 9 3·0 | 7 10·2 | 5 9·3 |
| Feb. 0 | 5 12·2 | 5 12·0 | 9 8·7 | 11 9·5 | 9 11·3 | 9 4·3 | 7 11·2 | 5 7·7 |
| Mar. 0 | 5 9·3 | 5 4·1 | 9 15·1 | 11 12·4 | 9 12·8 | 9 5·3 | 7 11·7 | 5 6·2 |
| Apr. 0 | 4 28·1 | 4 24·2 | 9 21·4 | 11 16·2 | 9 14·1 | 9 6·0 | 7 11·8 | 5 4·6 |
| May 0 | 4 23·2 | 4 24·8 | 9 25·9 | 11 19·9 | 9 14·8 | 9 6·2 | 7 11·2 | 5 3·0 |
| June 0 | 4 25·9 | 5 4·5 | 9 28·3 | 11 22·2 | 9 14·6 | 9 5·9 | 7 10·5 | 5 1·3 |
| July 0 | 5 11·3 | 5 18·9 | 9 28·0 | 11 25·3 | 9 13·9 | 9 5·2 | 7 9·6 | 4 29·7 |
| Aug. 0 | 5 27·8 | 6 6·6 | 9 24·9 | 11 26·1 | 9 12·7 | 9 4·4 | 7 9·0 | 4 28·1 |
| Sept. 0 | 6 16·9 | 6 26·7 | 9 20·9 | 11 25·4 | 9 11·6 | 9 3·7 | 7 9·1 | 4 26·5 |
| Oct. 0 | 7 6·9 | 7 17·6 | 9 18·8 | 11 23·4 | 9 10·9 | 9 3·4 | 7 9·6 | 4 24·9 |
| Nov. 0 | 7 29·2 | 8 10·5 | 9 19·6 | 11 21·0 | 9 11·0 | 9 3·6 | 7 10·6 | 4 23·2 |
| Dec. 0 | 8 22·0 | 9 3·5 | 9 22·9 | 11 19·6 | 9 11·8 | 9 4·3 | 7 11·6 | 4 21·6 |
| **1998** | | | | | | | | |
| Jan. 0 | 9 16·1 | 9 27·9 | 9 28·6 | 11 19·6 | 9 13·3 | 9 5·2 | 7 12·6 | 4 20·0 |
| Feb. 0 | 10 10·5 | 10 22·3 | 10 5·5 | 11 21·3 | 9 15·1 | 9 6·3 | 7 13·6 | 4 18·3 |
| Mar. 0 | 11 2·5 | 11 14·2 | 10 12·3 | 11 23·9 | 9 16·6 | 9 7·4 | 7 14·0 | 4 16·8 |
| Apr. 0 | 11 26·3 | 0 7·6 | 10 19·5 | 11 27·6 | 9 18·0 | 9 8·1 | 7 14·1 | 4 15·2 |
| May 0 | 0 18·7 | 0 29·6 | 10 25·9 | 0 1·3 | 9 18·8 | 9 8·4 | 7 13·6 | 4 13·6 |
| June 0 | 1 11·1 | 1 21·6 | 11 1·2 | 0 4·9 | 9 18·8 | 9 8·1 | 7 12·7 | 4 11·9 |
| July 0 | 2 1·9 | 2 12·2 | 11 4·2 | 0 7·7 | 9 18·1 | 9 7·5 | 7 12·0 | 4 10·3 |
| Aug. 0 | 2 22·7 | 3 2·6 | 11 4·5 | 0 9·2 | 9 16·9 | 9 6·7 | 7 11·4 | 4 8·7 |
| Sept. 0 | 3 13·0 | 3 22·4 | 11 2·0 | 0 9·1 | 9 15·8 | 9 5·9 | 7 11·4 | 4 7·1 |
| Oct. 0 | 4 1·8 | 4 11·0 | 10 28·0 | 0 7·6 | 9 15·0 | 9 5·6 | 7 12·0 | 4 5·5 |
| Nov. 0 | 4 20·5 | 4 29·4 | 10 25·2 | 0 5·4 | 9 15·0 | 9 5·7 | 7 13·0 | 4 3·8 |
| Dec. 0 | 5 7·9 | 5 16·0 | 10 25·3 | 0 3·2 | 9 15·7 | 9 6·3 | 7 14·1 | 4 2·2 |
| Dec. 31 | 5 24·3 | 6 1·4 | 10 28·4 | 0 2·5 | 9 17·1 | 9 7·3 | 7 15·1 | 4 0·6 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **1999** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Thur. | 8 15 15 | 1 15 20 | 2·22 | 12·495 | 87·9 | 57·8 |
| Feb. 0 | Sun. | 9 16 49 | 3 3 48 | 5·97 | 13·988 | 3·0 | 88·8 |
| Mar. 0 | Sun. | 10 15 6 | 3 12 44 | 6·46 | 12·433 | 31·0 | 116·8 |
| Apr. 0 | Wed. | 11 16 0 | 5 1 12 | 10·21 | 13·926 | 62·0 | 147·8 |
| May 0 | Fri. | 0 15 22 | 6 6 30 | 12·87 | 14·403 | 92·0 | 177·8 |
| June 0 | Mon. | 1 15 17 | 7 24 58 | 16·62 | 15·895 | 7·2 | 208·8 |
| July 0 | Wed. | 2 13 57 | 9 0 15 | 19·28 | 16·372 | 37·2 | 238·8 |
| Aug. 0 | Sat. | 3 13 32 | 10 18 43 | 23·03 | 17·865 | 68·2 | 269·8 |
| Sept. 0 | Tues. | 4 13 19 | 0 7 11 | 26·79 | 19·358 | 99·2 | 300·8 |
| Oct. 0 | Thur. | 5 12 33 | 1 12 29 | 29·45 | 19·835 | 13·3 | 330·8 |
| Nov. 0 | Sun. | 6 13 16 | 3 0 57 | 3·20 | 21·327 | 44·3 | 361·8 |
| Dec. 0 | Tues. | 7 13 28 | 4 6 14 | 5·86 | 21·804 | 74·3 | 391·8 |
| **2000** | | | | | | | |
| Jan. 0 | Fri. | 8 14 59 | 5 24 42 | 9·61 | 23·297 | 105·3 | 422·8 |
| Feb. 0 | Mon. | 9 16 33 | 7 13 10 | 13·36 | 24·790 | 20·4 | 453·8 |
| Mar. 0 | Tues. | 10 15 51 | 8 5 17 | 14·94 | 24·251 | 49·4 | 482·8 |
| Apr. 0 | Fri. | 11 16 44 | 9 23 45 | 18·69 | 25·744 | 80·4 | 513·8 |
| May 0 | Sun. | 0 16 5 | 10 29 2 | 21·35 | 26·220 | 110·4 | 543·8 |
| June 0 | Wed. | 1 16 0 | 0 17 30 | 25·10 | 27·713 | 25·5 | 574·8 |
| July 0 | Fri. | 2 14 39 | 1 22 48 | 27·77 | 28·190 | 55·5 | 20·9 |
| Aug. 0 | Mon. | 3 14 14 | 3 11 16 | 1·52 | 29·683 | 86·5 | 51·9 |
| Sept. 0 | Thur. | 4 14 2 | 4 29 44 | 5·27 | 1·176 | 1·7 | 82·9 |
| Oct. 0 | Sat. | 5 13 16 | 6 5 1 | 7·93 | 1·653 | 31·7 | 112·9 |
| Nov. 0 | Tues. | 6 14 1 | 7 23 30 | 11·68 | 3·145 | 62·7 | 143·9 |
| Dec. 0 | Thur. | 7 14 13 | 8 28 47 | 14·34 | 3·622 | 92·7 | 173·9 |
| **2001** | | | | | | | |
| Jan. 0 | Sun. | 8 15 45 | 10 17 15 | 18·10 | 5·115 | 7·8 | 204·9 |
| Feb. 0 | Wed. | 9 17 18 | 0 5 43 | 21·85 | 6·608 | 38·8 | 235·9 |
| Mar. 0 | Wed. | 10 15 36 | 0 14 39 | 22·33 | 5·053 | 66·8 | 263·9 |
| Apr. 0 | Sat. | 11 16 28 | 2 3 7 | 26·08 | 6·546 | 97·8 | 294·9 |
| May 0 | Mon. | 0 15 51 | 3 8 25 | 28·75 | 7·022 | 11·9 | 324·9 |
| June 0 | Thur. | 1 15 45 | 4 26 53 | 2·50 | 8·515 | 42·9 | 355·9 |
| July 0 | Sat. | 2 14 25 | 6 2 10 | 5·16 | 8·992 | 72·9 | 385·9 |
| Aug. 0 | Tues. | 3 14 0 | 7 20 38 | 8·91 | 10·485 | 103·9 | 416·9 |
| Sept. 0 | Fri. | 4 13 47 | 9 9 6 | 12·66 | 11·978 | 19·0 | 447·9 |
| Oct. 0 | Sun. | 5 13 1 | 10 14 24 | 15·32 | 12·454 | 49·0 | 477·9 |
| Nov. 0 | Wed. | 6 13 45 | 0 2 52 | 19·08 | 13·947 | 80·0 | 508·9 |
| Dec. 0 | Fri. | 7 13 58 | 1 8 9 | 21·74 | 14·424 | 110·0 | 538·9 |
| **2002** | | | | | | | |
| Jan. 0 | Mon. | 8 15 29 | 2 26 37 | 25·49 | 15·917 | 25·1 | 569·9 |
| Feb. 0 | Thur. | 9 17 3 | 4 15 5 | 29·24 | 17·410 | 56·1 | 16·9 |
| Mar. 0 | Thur. | 10 15 20 | 4 24 1 | 29·73 | 15·855 | 84·1 | 44·9 |
| Apr. 0 | Sun. | 11 16 13 | 6 12 29 | 3·48 | 17·348 | 115·1 | 75·9 |
| May 0 | Tues. | 0 15 36 | 7 17 47 | 6·14 | 17·824 | 29·3 | 105·9 |
| June 0 | Fri. | 1 15 30 | 9 6 15 | 9·89 | 19·317 | 60·3 | 136·9 |
| July 0 | Sun. | 2 14 10 | 10 11 32 | 12·55 | 19·794 | 90·3 | 166·9 |
| Aug. 0 | Wed. | 3 13 45 | 0 0 0 | 16·30 | 21·287 | 5·4 | 197·9 |
| Sept. 0 | Sat. | 4 13 32 | 1 18 28 | 20·06 | 22·780 | 36·4 | 228·9 |
| Oct. 0 | Mon. | 5 12 46 | 2 23 46 | 22·71 | 23·256 | 66·4 | 258·9 |
| Nov. 0 | Thur. | 6 13 30 | 4 12 14 | 26·47 | 24·749 | 97·4 | 289·9 |
| Dec. 0 | Sat. | 7 13 42 | 5 17 31 | 29·13 | 25·226 | 11·5 | 319·9 |
| Dec. 31 | Tues. | 8 15 14 | 7 5 59 | 2·88 | 26·719 | 42·5 | 350·9 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **1999** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 5 24·3 | 6 1·4 | 10 28·4 | 0 2·5 | 9 17·1 | 9 7·3 | 7 15·1 | 4 0·6 |
| Feb. 0 | 6 8·1 | 6 13·3 | 11 4·0 | 0 3·5 | 9 18·9 | 9 8·5 | 7 16·1 | 3 28·9 |
| Mar. 0 | 6 16·4 | 6 18·3 | 11 10·0 | 0 5·8 | 9 20·4 | 9 9·5 | 7 16·5 | 3 27·4 |
| Apr. 0 | 6 17·3 | 6 13·6 | 11 17·4 | 0 9·2 | 9 21·9 | 9 10·3 | 7 16·6 | 3 25·8 |
| May 0 | 6 8·1 | 6 3·1 | 11 24·5 | 0 12·9 | 9 22·7 | 9 10·5 | 7 16·1 | 3 24·2 |
| June 0 | 6 0·6 | 6 1·3 | 0 1·5 | 0 16·8 | 9 22·8 | 9 10·3 | 7 15·2 | 3 22·6 |
| July 0 | 6 4·6 | 6 9·8 | 0 6·8 | 0 19·9 | 9 22·3 | 9 9·6 | 7 14·4 | 3 21·0 |
| Aug. 0 | 6 16·9 | 6 24·9 | 0 10·5 | 0 22·1 | 9 21·1 | 9 8·8 | 7 13·9 | 3 19·4 |
| Sept. 0 | 7 4·3 | 7 13·9 | 0 11·5 | 0 22·8 | 9 20·0 | 9 8·1 | 7 13·8 | 3 17·7 |
| Oct. 0 | 7 23·9 | 8 4·5 | 0 9·5 | 0 22·0 | 9 19·2 | 9 7·7 | 7 14·5 | 3 16·1 |
| Nov. 0 | 8 16·2 | 8 27·4 | 0 5·6 | 0 19·9 | 9 19·0 | 9 7·9 | 7 15·4 | 3 14·5 |
| Dec. 0 | 9 8·8 | 9 20·4 | 0 2·5 | 0 17·5 | 9 19·6 | 9 8·5 | 7 16·4 | 3 12·9 |
| **2000** | | | | | | | | |
| Jan. 0 | 10 2·7 | 10 14·5 | 0 1·8 | 0 16·1 | 9 20·9 | 9 9·4 | 7 17·4 | 3 11·2 |
| Feb. 0 | 10 26·7 | 11 8·3 | 0 4·4 | 0 16·3 | 9 22·6 | 9 10·6 | 7 18·4 | 3 9·6 |
| Mar. 0 | 11 18·9 | 0 0·2 | 0 9·1 | 0 18·1 | 9 24·3 | 9 11·6 | 7 18·9 | 3 8·1 |
| Apr. 0 | 0 12·0 | 0 22·9 | 0 15·5 | 0 21·2 | 9 25·8 | 9 12·4 | 7 18·9 | 3 6·5 |
| May 0 | 1 3·5 | 1 14·0 | 0 22·6 | 0 24·8 | 9 26·6 | 9 12·7 | 7 18·3 | 3 4·9 |
| June 0 | 1 25·1 | 2 5·3 | 0 29·8 | 0 29·7 | 9 26·9 | 9 12·5 | 7 17·5 | 3 3·2 |
| July 0 | 2 14·7 | 2 25·2 | 1 6·4 | 1 2·3 | 9 26·4 | 9 11·9 | 7 16·8 | 3 1·7 |
| Aug. 0 | 3 5·7 | 3 15·4 | 1 12·3 | 1 5·0 | 9 25·3 | 9 11·1 | 7 16·2 | 3 0·0 |
| Sept. 0 | 3 25·6 | 4 5·1 | 1 16·3 | 1 6·4 | 9 24·1 | 9 10·3 | 7 16·3 | 2 28·4 |
| Oct. 0 | 4 14·6 | 4 24·0 | 1 17·7 | 1 6·3 | 9 23·2 | 9 9·9 | 7 16·7 | 2 26·8 |
| Nov. 0 | 5 3·8 | 5 13·1 | 1 16·2 | 1 4·4 | 9 23·0 | 9 10·0 | 7 17·6 | 2 25·1 |
| Dec. 0 | 5 22·3 | 6 1·2 | 1 12·4 | 1 2·2 | 9 23·5 | 9 10·6 | 7 18·7 | 2 23·6 |
| **2001** | | | | | | | | |
| Jan. 0 | 6 10·7 | 6 19·4 | 1 8·8 | 1 0·4 | 9 24·8 | 9 11·5 | 7 19·6 | 2 21·9 |
| Feb. 0 | 6 28·3 | 7 6·3 | 1 7·8 | 0 29·7 | 9 26·5 | 9 12·8 | 7 20·6 | 2 20·3 |
| Mar. 0 | 7 12·8 | 7 19·8 | 1 9·6 | 1 0·8 | 9 28·1 | 9 13·8 | 7 21·1 | 2 18·8 |
| Apr. 0 | 7 26·4 | 8 1·0 | 1 13·9 | 1 3·4 | 9 29·6 | 9 14·7 | 7 21·2 | 2 17·1 |
| May 0 | 8 3·9 | 8 4·3 | 1 19·7 | 1 6·6 | 10 0·6 | 9 15·0 | 7 20·6 | 2 15·5 |
| June 0 | 8 1·9 | 7 27·4 | 1 26·6 | 1 10·7 | 10 0·9 | 9 14·9 | 7 19·8 | 2 13·9 |
| July 0 | 7 22·7 | 7 20·5 | 2 3·4 | 1 14·6 | 10 0·5 | 9 14·2 | 7 19·0 | 2 12·3 |
| Aug. 0 | 7 21·4 | 7 25·1 | 2 10·3 | 1 17·7 | 9 29·5 | 9 13·4 | 7 18·5 | 2 10·7 |
| Sept. 0 | 8 1·3 | 8 8·8 | 2 16·1 | 1 19·9 | 9 28·3 | 9 12·7 | 7 18·5 | 2 9·0 |
| Oct. 0 | 8 17·8 | 8 27·4 | 2 20·3 | 1 20·6 | 9 27·3 | 9 12·1 | 7 18·9 | 2 7·4 |
| Nov. 0 | 9 7·9 | 9 18·5 | 2 22·0 | 1 19·6 | 9 27·0 | 9 12·0 | 7 19·9 | 2 5·8 |
| Dec. 0 | 9 29·2 | 10 10·3 | 2 20·7 | 1 17·3 | 9 27·4 | 9 12·8 | 7 21·0 | 2 4·2 |
| **2002** | | | | | | | | |
| Jan. 0 | 10 22·1 | 11 3·1 | 2 17·2 | 1 14·9 | 9 28·6 | 9 13·6 | 7 21·9 | 2 2·6 |
| Feb. 0 | 11 14·7 | 11 25·5 | 2 13·3 | 1 13·7 | 10 0·2 | 9 14·9 | 7 22·9 | 2 0·9 |
| Mar. 0 | 0 4·9 | 0 15·5 | 2 11·9 | 1 14·0 | 10 1·8 | 9 15·9 | 7 23·4 | 1 29·4 |
| Apr. 0 | 0 26·7 | 1 7·1 | 2 13·3 | 1 16·0 | 10 3·4 | 9 16·8 | 7 23·5 | 1 27·7 |
| May 0 | 1 17·3 | 1 27·4 | 2 17·1 | 1 19·0 | 10 4·5 | 9 17·2 | 7 22·9 | 1 26·1 |
| June 0 | 2 7·9 | 2 17·8 | 2 22·7 | 1 22·8 | 10 4·9 | 9 17·1 | 7 22·1 | 1 24·5 |
| July 0 | 2 27·7 | 3 7·3 | 2 29·1 | 1 26·8 | 10 4·6 | 9 16·6 | 7 21·3 | 1 22·9 |
| Aug. 0 | 3 17·6 | 3 27·1 | 3 5·9 | 2 0·3 | 10 3·6 | 9 15·8 | 7 20·8 | 1 21·3 |
| Sept. 0 | 4 7·3 | 4 16·9 | 3 12·5 | 2 3·2 | 10 2·4 | 9 14·9 | 7 20·8 | 1 19·6 |
| Oct. 0 | 4 26·4 | 5 5·9 | 3 18·2 | 2 4·6 | 10 1·4 | 9 14·4 | 7 21·3 | 1 18·0 |
| Nov. 0 | 5 16·1 | 5 25·7 | 3 22·5 | 2 4·3 | 10 1·0 | 9 14·4 | 7 22·2 | 1 16·4 |
| Dec. 0 | 6 5·3 | 6 15·0 | 3 24·3 | 2 2·5 | 10 1·3 | 9 14·9 | 7 23·2 | 1 14·8 |
| Dec. 31 | 6 25·2 | 7 4·9 | 3 23·2 | 2 0·0 | 10 2·4 | 9 15·7 | 7 24·2 | 1 13·2 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction Mercury | Days from Conjunction Venus |
|---|---|---|---|---|---|---|---|
| **2003** | | s ° ' | s ° ' | | | d | d |
| Jan. 0 | Tues. | 8 15 14 | 7 5 59 | 2·88 | 26·719 | 42·5 | 350·9 |
| Feb. 0 | Fri. | 9 16 47 | 8 24 27 | 6·63 | 28·212 | 73·5 | 381·9 |
| Mar. 0 | Fri. | 10 15 5 | 9 3 24 | 7·12 | 26·657 | 101·5 | 409·9 |
| Apr. 0 | Mon. | 11 15 58 | 10 21 52 | 10·87 | 28·149 | 16·6 | 440·9 |
| May 0 | Wed. | 0 15 21 | 11 27 9 | 13·53 | 28·626 | 46·6 | 470·9 |
| June 0 | Sat. | 1 15 15 | 1 15 37 | 17·28 | 0·119 | 77·6 | 501·9 |
| July 0 | Mon. | 2 13 55 | 2 20 55 | 19·95 | 0·596 | 107·6 | 531·9 |
| Aug. 0 | Thur. | 3 13 30 | 4 9 23 | 23·70 | 2·089 | 22·8 | 562·9 |
| Sept. 0 | Sun. | 4 13 17 | 5 27 51 | 27·45 | 3·582 | 53·8 | 10·0 |
| Oct. 0 | Tues. | 5 12 31 | 7 3 8 | 0·11 | 4·058 | 83·8 | 40·0 |
| Nov. 0 | Fri. | 6 13 14 | 8 21 36 | 3·86 | 5·551 | 114·8 | 71·0 |
| Dec. 0 | Sun. | 7 13 26 | 9 26 54 | 6·52 | 6·028 | 28·9 | 101·0 |
| **2004** | | | | | | | |
| Jan. 0 | Wed. | 8 14 58 | 11 15 22 | 10·28 | 7·521 | 59·9 | 132·0 |
| Feb. 0 | Sat. | 9 16 32 | 1 3 50 | 14·03 | 9·014 | 90·9 | 163·0 |
| Mar. 0 | Sun. | 10 15 50 | 1 25 57 | 15·60 | 8·475 | 4·0 | 192·0 |
| Apr. 0 | Wed. | 11 16 42 | 3 14 25 | 19·35 | 9·967 | 35·0 | 223·0 |
| May 0 | Fri. | 0 16 4 | 4 19 42 | 22·01 | 10·444 | 65·0 | 253·0 |
| June 0 | Mon. | 1 15 58 | 6 8 10 | 25·77 | 11·937 | 96·0 | 284·0 |
| July 0 | Wed. | 2 14 37 | 7 13 28 | 28·43 | 12·414 | 10·1 | 314·0 |
| Aug. 0 | Sat. | 3 14 13 | 9 1 55 | 2·18 | 13·907 | 41·1 | 345·0 |
| Sept. 0 | Tues. | 4 14 1 | 10 20 24 | 5·93 | 15·399 | 72·1 | 376·0 |
| Oct. 0 | Thur. | 5 13 15 | 11 25 41 | 8·59 | 15·876 | 102·1 | 406·0 |
| Nov. 0 | Sun. | 6 13 59 | 1 14 9 | 12·34 | 17·369 | 17·3 | 437·0 |
| Dec. 0 | Tues. | 7 14 12 | 2 19 27 | 15·01 | 17·846 | 47·3 | 467·0 |
| **2005** | | | | | | | |
| Jan. 0 | Fri. | 8 15 43 | 4 7 55 | 18·76 | 19·339 | 78·3 | 498·0 |
| Feb. 0 | Mon. | 9 17 17 | 5 26 23 | 22·51 | 20·831 | 109·3 | 529·0 |
| Mar. 0 | Mon. | 10 15 24 | 6 5 19 | 22·99 | 19·277 | 21·4 | 557·0 |
| Apr. 0 | Thur. | 11 16 27 | 7 23 47 | 26·75 | 20·769 | 52·4 | 4·1 |
| May 0 | Sat | 0 15 50 | 8 29 4 | 29·41 | 21·246 | 82·4 | 34·1 |
| June 0 | Tues. | 1 15 43 | 10 17 32 | 3·16 | 22·739 | 113·4 | 65·1 |
| July 0 | Thur. | 2 14 23 | 11 22 50 | 5·82 | 23·216 | 27·5 | 95·1 |
| Aug. 0 | Sun. | 3 13 58 | 1 11 18 | 9·57 | 24·709 | 58·5 | 126·1 |
| Sept. 0 | Wed. | 4 13 46 | 2 29 46 | 13·32 | 26·201 | 89·5 | 157·1 |
| Oct. 0 | Fri. | 5 13 0 | 4 5 3 | 15·99 | 26·678 | 3·6 | 187·1 |
| Nov. 0 | Mon. | 6 13 44 | 5 23 31 | 19·74 | 28·171 | 34·6 | 218·1 |
| Dec. 0 | Wed. | 7 13 56 | 6 28 49 | 22·40 | 28·648 | 64·6 | 248·1 |
| **2006** | | | | | | | |
| Jan. 0 | Sat. | 8 15 28 | 8 17 17 | 26·15 | 0·141 | 95·6 | 279·1 |
| Feb. 0 | Tues. | 9 17 1 | 10 5 45 | 29·90 | 1·633 | 10·7 | 310·1 |
| Mar. 0 | Tues. | 10 15 19 | 10 14 41 | 0·39 | 0·078 | 38·7 | 338·1 |
| Apr. 0 | Fri. | 11 16 12 | 0 3 9 | 4·14 | 1·571 | 69·7 | 369·1 |
| May 0 | Sun. | 0 15 35 | 1 8 26 | 6·80 | 2·048 | 99·7 | 399·1 |
| June 0 | Wed. | 1 15 29 | 2 26 55 | 10·55 | ·541 | 14·9 | 430·1 |
| July 0 | Fri. | 2 14 9 | 4 2 12 | 13·22 | 4·018 | 44·9 | 460·1 |
| Aug. 0 | Mon. | 3 13 43 | 5 20 40 | 16·97 | 5·511 | 75·9 | 491·1 |
| Sept. 0 | Thur. | 4 13 31 | 7 9 8 | 20·72 | 7·003 | 106·9 | 522·1 |
| Oct. 0 | Sat. | 5 12 45 | 8 14 25 | 23·38 | 7·480 | 21·0 | 552·1 |
| Nov. 0 | Tues. | 6 13 28 | 10 2 53 | 27·13 | 8·973 | 52·0 | 583·1 |
| Dec. 0 | Thur. | 7 13 40 | 11 8 11 | 29·79 | 9·450 | 82·0 | 29·2 |
| Dec. 31 | Sun. | 8 15 12 | 0 26 39 | 3·55 | 10·943 | 113·0 | 60·2 |

**EPHEMERIS**

**Planets : 2003-2006**

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2003** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 6 25·2 | 7 4·9 | 3 23·2 | 2 0·0 | 10 2·4 | 9 15·7 | 7 24·2 | 1 13·2 |
| Feb. 0 | 7 15·1 | 7 24·7 | 3 19·6 | 1 28·0 | 10 4·0 | 9 17·0 | 7 25·2 | 1 11·5 |
| Mar. 0 | 8 3·0 | 8 12·5 | 3 16·2 | 1 27·7 | 10 5·6 | 9 18·0 | 7 26·0 | 1 10·0 |
| Apr. 0 | 8 22·4 | 9 1·6 | 3 14·2 | 1 29·0 | 10 7·2 | 9 18·9 | 7 26·3 | 1 8·4 |
| May 0 | 9 10·6 | 9 19·1 | 3 15·3 | 2 1·6 | 10 8·3 | 9 19·2 | 7 26·1 | 1 6·8 |
| June 0 | 9 27·5 | 10 4·3 | 3 18·8 | 2 5·1 | 10 8·9 | 9 19·1 | 7 25·3 | 1 5·2 |
| July 0 | 10 9·9 | 10 13·4 | 3 23·9 | 2 9·0 | 10 8·6 | 9 18·4 | 7 24·5 | 1 3·6 |
| Aug. 0 | 10 14·5 | 10 12·5 | 4 0·3 | 2 12·8 | 10 7·8 | 9 17·6 | 7 23·8 | 1 1·9 |
| Sept. 0 | 10 8·3 | 10 5·2 | 4 7·1 | 2 16·2 | 10 6·6 | 9 16·9 | 7 23·5 | 1 0·3 |
| Oct. 0 | 10 4·8 | 10 7·0 | 4 13·3 | 2 18·2 | 10 5·5 | 9 16·3 | 7 23·8 | 0 28·7 |
| Nov. 0 | 10 12·0 | 10 18·6 | 4 19·1 | 2 18·7 | 10 5·0 | 9 16·2 | 7 24·6 | 0 27·1 |
| Dec. 0 | 10 26·2 | 11 4·9 | 4 23·2 | 2 17·6 | 10 5·2 | 9 17·0 | 7 25·4 | 0 25·5 |
| **2004** | | | | | | | | |
| Jan. 0 | 11 14·4 | 11 23·7 | 4 25·1 | 2 15·3 | 10 6·2 | 9 17·8 | 7 26·4 | 0 23·9 |
| Feb. 0 | 0 3·8 | 0 13·5 | 4 23·9 | 2 13·0 | 10 7·7 | 9 19·1 | 7 27·4 | 0 22·2 |
| Mar. 0 | 0 22·5 | 1 2·1 | 4 20·7 | 2 11·0 | 10 9·3 | 9 20·1 | 7 28·2 | 0 20·7 |
| Apr. 0 | 1 12·4 | 1 22·0 | 4 16·8 | 2 12·4 | 10 11·0 | 9 21·0 | 7 28·5 | 0 19·1 |
| May 0 | 2 1·5 | 2 11·2 | 4 15·1 | 2 14·4 | 10 12·2 | 9 21·4 | 7 28·2 | 0 17·5 |
| June 0 | 2 21·3 | 3 0·7 | 4 16·0 | 2 17·6 | 10 12·8 | 9 21·3 | 7 27·5 | 0 15·9 |
| July 0 | 3 10·2 | 3 19·7 | 4 19·4 | 2 21·4 | 10 12·7 | 9 20·8 | 7 26·7 | 0 14·3 |
| Aug. 0 | 3 29·8 | 4 9·3 | 4 24·6 | 2 25·3 | 10 11·8 | 9 20·0 | 7 26·0 | 0 12·6 |
| Sept. 0 | 4 19·4 | 4 29·1 | 5 0·8 | 2 28·9 | 10 10·6 | 9 19·1 | 7 25·7 | 0 11·0 |
| Oct. 0 | 5 8·7 | 5 18·3 | 5 7·3 | 3 1·5 | 10 9·6 | 9 18·6 | 7 26·0 | 0 9·4 |
| Nov. 0 | 5 29·0 | 6 8·9 | 5 13·8 | 3 2·8 | 10 8·9 | 9 18·6 | 7 26·8 | 0 7·7 |
| Dec. 0 | 6 18·8 | 6 29·0 | 5 19·2 | 3 2·4 | 10 9·1 | 9 19·1 | 7 27·6 | 0 6·2 |
| **2005** | | | | | | | | |
| Jan. 0 | 7 9·8 | 7 20·2 | 5 23·4 | 3 0·5 | 10 10·0 | 9 20·0 | 7 28·6 | 0 4·5 |
| Feb. 0 | 8 1·3 | 8 11·9 | 5 25·1 | 2 28·0 | 10 11·5 | 9 21·0 | 7 29·6 | 0 2·9 |
| Mar. 0 | 8 2[illegible] | 9 1·8 | 5 24·1 | 2 26·4 | 10 13·1 | 9 22·1 | 8 0·4 | 0 1·4 |
| Apr. 0 | 9 13·3 | 9 24·1 | 5 20·6 | 2 26·0 | 10 14·7 | 9 23·1 | 8 0·6 | 11 29·7 |
| May 0 | 10 5·1 | 10 15·9 | 5 17·1 | 2 27·4 | 10 16·0 | 9 23·6 | 8 0·4 | 11 28·2 |
| June 0 | 10 27·2 | 11 7·7 | 5 15·1 | 3 0·1 | 10 16·7 | 9 23·6 | 7 29·6 | 11 26·5 |
| July 0 | 11 17·9 | 11 27·6 | 5 16·0 | 3 3·6 | 10 16·7 | 9 23·2 | 7 28·8 | 11 24·9 |
| Aug. 0 | 0 7·2 | 0 15·2 | 5 19·3 | 3 7·4 | 10 15·9 | 9 22·4 | 7 28·2 | 11 23·3 |
| Sept. 0 | 0 22·3 | 0 26·8 | 5 24·6 | 3 11·4 | 10 14·8 | 9 21·6 | 7 27·8 | 11 21·7 |
| Oct. 0 | 0 28·7 | 0 27·4 | 6 0·6 | 3 14·4 | 10 13·6 | 9 21·0 | 7 28·1 | 11 20·1 |
| Nov. 0 | 0 22·7 | 0 17·5 | 6 7·3 | 3 16·4 | 10 12·9 | 9 20·9 | 7 28·9 | 11 18·4 |
| Dec. 0 | 0 14·3 | 0 13·9 | 6 13·6 | 3 16·8 | 10 13·0 | 9 21·3 | 7 29·8 | 11 16·8 |
| **2006** | | | | | | | | |
| Jan. 0 | 0 16·4 | 0 21·2 | 6 19·4 | 3 15·5 | 10 13·8 | 9 22·1 | 8 0·8 | 11 15·2 |
| Feb. 0 | 0 27·7 | 1 4·6 | 6 23·5 | 3 13·3 | 10 15·2 | 9 23·1 | 8 1·8 | 11 13·5 |
| Mar. 0 | 1 11·2 | 1 19·3 | 6 25·1 | 3 11·1 | 10 16·8 | 9 24·2 | 8 2·5 | 11 12·0 |
| Apr. 0 | 1 28·2 | 2 6·8 | 6 24·0 | 3 10·0 | 10 18·5 | 9 25·2 | 8 2·8 | 11 10·3 |
| May 0 | 2 15·6 | 2 24·6 | 6 20·8 | 3 10·5 | 10 19·8 | 9 25·7 | 8 2·6 | 11 8·8 |
| June 0 | 3 4·1 | 3 13·1 | 6 17·0 | 3 12·6 | 10 20·6 | 9 25·8 | 8 1·8 | 11 7·1 |
| July 0 | 3 22·2 | 4 1·5 | 6 15·2 | 3 15·7 | 10 20·7 | 9 25·4 | 8 1·0 | 11 5·5 |
| Aug. 0 | 4 11·5 | 4 20·8 | 6 16·0 | 3 19·5 | 10 20·0 | 9 24·6 | 8 0·4 | 11 3·9 |
| Sept. 0 | 5 1·0 | 5 10·7 | 6 19·5 | 3 23·5 | 10 18·9 | 9 23·8 | 8 0·1 | 11 2·2 |
| Oct. 0 | 5 20·5 | 6 0·5 | 6 24·5 | 3 26·9 | 10 17·7 | 9 23·2 | 8 0·4 | 11 0·7 |
| Nov. 0 | 6 11·2 | 6 21·4 | 7 1·0 | 3 29·5 | 1 16·9 | 9 23·0 | 8 1·1 | 10 29·0 |
| Dec. 0 | 7 1·8 | 7 12·3 | 7 7·6 | 4 0·6 | 10 16·9 | 9 23·4 | 8 2·0 | 10 27·5 |
| Dec. 31 | 7 23·8 | 8 4·7 | 7 14·3 | 4 0·0 | 10 17·6 | 9 24·2 | 8 2·9 | 10 25·8 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **2007** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Sun. | 8 15 12 | 0 26 39 | 3·55 | 10·943 | 113·0 | 60·2 |
| Feb. 0 | Wed. | 9 16 46 | 2 15 7 | 7·30 | 12·435 | 28·1 | 91·2 |
| Mar. 0 | Wed. | 10 15 3 | 2 4 3 | 7·78 | 10·880 | 56·1 | 119·2 |
| Apr. 0 | Sat. | 11 15 57 | 4 12 31 | 11·53 | 12·373 | 87·1 | 150·2 |
| May 0 | Mon. | 0 15 20 | 5 17 50 | 14·20 | 12·850 | 1·2 | 180·2 |
| June 0 | Thur. | 1 15 14 | 7 6 17 | 17·95 | 14·343 | 32·2 | 211·2 |
| July 0 | Sat. | 2 13 54 | 8 11 34 | 20·61 | 14·820 | 62·2 | 241·2 |
| Aug. 0 | Tues. | 3 13 29 | 10 0 2 | 24·36 | 16·312 | 93·2 | 272·2 |
| Sept. 0 | Fri. | 4 13 16 | 11 18 30 | 28·11 | 17·805 | 8·4 | 303·2 |
| Oct. 0 | Sun. | 5 12 30 | 0 23 48 | 0·77 | 18·282 | 38·4 | 333·2 |
| Nov. 0 | Wed. | 6 13 13 | 2 12 16 | 4·53 | 19·775 | 69·4 | 364·2 |
| Dec. 0 | Fri. | 7 13 25 | 3 17 33 | 7·19 | 20·252 | 99·4 | 394·2 |
| **2008** | | | | | | | |
| Jan. 0 | Mon. | 8 14 56 | 5 6 1 | 10·94 | 21·745 | 14·5 | 425·2 |
| Feb. 0 | Thur. | 9 16 30 | 6 24 29 | 14·69 | 23·237 | 45·5 | 456·2 |
| Mar. 0 | Fri. | 10 15 48 | 7 16 36 | 16·26 | 22·698 | 74·5 | 485·2 |
| Apr. 0 | Mon. | 11 16 41 | 9 5 4 | 20·02 | 24·191 | 105·5 | 516·2 |
| May 0 | Wed. | 0 16 3 | 10 10 21 | 22·68 | 24·668 | 19·6 | 546·2 |
| June 0 | Sat | 1 15 57 | 11 28 49 | 26·43 | 26·161 | 50·6 | 577·2 |
| July 0 | Mon. | 2 14 36 | 1 4 7 | 29·09 | 26·638 | 80·6 | 23·3 |
| Aug. 0 | Thur. | 3 14 11 | 2 22 35 | 2·84 | 28·130 | 111·6 | 54·3 |
| Sept. 0 | Sun. | 4 13 59 | 4 11 3 | 6·53 | 29·6 3 | 26·7 | 85·3 |
| Oct. 0 | Tues. | 5 13 14 | 5 16 20 | 9·26 | 0·100 | 56·7 | 115·3 |
| Nov. 0 | Fri. | 6 13 57 | 7 4 48 | 13·01 | 1·593 | 87·7 | 146·3 |
| Dec. 0 | Sun. | 7 14 10 | 8 10 6 | 15·67 | 2·070 | 1·8 | 176·3 |
| **2009** | | | | | | | |
| Jan. 0 | Wed. | 8 15 42 | 9 28 34 | 19·42 | 3·562 | 32·8 | 207·3 |
| Feb. 0 | Sat. | 9 17 15 | 11 17 2 | 23·17 | 5·055 | 63·8 | 238·3 |
| Mar. 0 | Sat. | 10 15 33 | 11 25 58 | 23·66 | 3·500 | 91·8 | 266·3 |
| Apr. 0 | Tues. | 11 16 25 | 1 14 26 | 27·41 | 4·993 | 7·0 | 297·3 |
| May 0 | Thur. | 0 15 48 | 2 19 44 | 0·07 | 5·470 | 37·0 | 327·3 |
| June 0 | Sun. | 1 15 42 | 4 8 12 | 3·82 | 6·963 | 68·0 | 358·3 |
| July 0 | Tues. | 2 14 22 | 5 13 29 | 6·48 | 7·440 | 98·0 | 388·3 |
| Aug. 0 | Fri. | 3 13 57 | 7 1 57 | 10·24 | 8·932 | 13·1 | 419·3 |
| Sept. 0 | Mon. | 4 13 44 | 8 20 25 | 13·99 | 10·425 | 44·1 | 450·3 |
| Oct. 0 | Wed. | 5 12 58 | 9 25 43 | 16·65 | 10·902 | 74·1 | 480·3 |
| Nov. 0 | Sat. | 6 13 42 | 11 14 11 | 20·40 | 12·395 | 105·1 | 511·3 |
| Dec. 0 | Mon. | 7 13 55 | 0 19 28 | 23·06 | 12·872 | 19·2 | 541·3 |
| **2010** | | | | | | | |
| Jan. 0 | Thur. | 8 15 26 | 2 7 56 | 26·81 | 14·364 | 50·2 | 572·3 |
| Feb. 0 | Sun. | 9 17 0 | 3 26 24 | 0·57 | 15·857 | 81·2 | 19·3 |
| Mar. 0 | Sun. | 10 15 17 | 4 5 21 | 1·05 | 14·302 | 109·2 | 47·3 |
| Apr. 0 | Wed. | 11 16 10 | 5 23 49 | 4·80 | 15·795 | 24·3 | 78·3 |
| May 0 | Fri. | 0 15 33 | 6 29 6 | 7·46 | 16·272 | 54·3 | 108·3 |
| June 0 | Mon. | 1 15 27 | 8 17 34 | 11·22 | 17·765 | 85·3 | 139·3 |
| July 0 | Wed. | 2 14 7 | 9 22 51 | 13·88 | 18·241 | 115·3 | 169·3 |
| Aug. 0 | Sat. | 3 13 42 | 11 11 20 | 17·63 | 19·734 | 30·5 | 200·3 |
| Sept. 0 | Tues. | 4 13 29 | 0 29 48 | 21·38 | 21·227 | 61·5 | 231·3 |
| Oct. 0 | Thur | 5 12 43 | 2 5 5 | 24·04 | 21·704 | 91·5 | 261·3 |
| Nov. 0 | Sun. | 6 13 27 | 3 23 33 | 27·79 | 23·197 | 6·6 | 292·3 |
| Dec. 0 | Tues. | 7 13 39 | 4 28 50 | 0·46 | 23·674 | 36·6 | 322·3 |
| Dec. 31 | Fri. | 8 15 16 | 6 17 19 | 4·21 | 25·166 | 67·6 | 353·2 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2007** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 7 23·8 | 8 4·7 | 7 14·3 | 4 0·0 | 10 17·6 | 9 24·2 | 8 2·9 | 10 25·8 |
| Feb. 0 | 8 16·5 | 8 27·6 | 7 20·1 | 3 28·0 | 10 18·9 | 9 25·3 | 8 3·9 | 10 24·1 |
| Mar. 0 | 9 7·4 | 9 18·7 | 7 23·9 | 3 25·8 | 10 20·5 | 9 26·4 | 8 4·7 | 10 22·[illegible] |
| Apr. 0 | 10 1·1 | 10 12·5 | 7 25·9 | 3 24 1 | 10 22·2 | 9 27·4 | 8 5·0 | 10 21·0 |
| May 0 | 10 24·0 | 11 5·4 | 7 25·2 | 3 23·8 | 10 23·6 | 9 27·9 | 8 4·8 | 10 19·4 |
| June 0 | 11 17·6 | 11 28·6 | 7 21·9 | 3 25·3 | 10 24·5 | 9 27·9 | 8 4·0 | 10 17·8 |
| July 0 | 0 9·6 | 0 20·2 | 7 18·3 | 3 27·9 | 10 24·7 | 9 27·5 | 8 3·2 | 10 16·2 |
| Aug. 0 | 1 1·1 | 1 11·0 | 7 16·3 | 4 1·5 | 10 24·1 | 9 26·7 | 8 2·5 | 10 14·5 |
| Sept. 0 | 1 20·7 | 1 29·2 | 7 17·1 | 4 5·4 | 10 23·0 | 9 25·9 | 8 2·3 | 10 12·9 |
| Oct. 0 | 2 6·4 | 2 12 5 | 7 20·3 | 4 9·0 | 10 21·8 | 9 25·3 | 8 2·5 | 10 11·3 |
| Nov. 0 | 2 16·9 | 2 18·4 | 7 25·7 | 4 12 1 | 10 21·0 | 9 25·2 | 8 3·2 | 10 9·7 |
| Dec. 0 | 2 17·0 | 2 12·5 | 8 1·0 | 4 13·8 | 10 20·8 | 9 25·6 | 8 4·0 | 10 8·1 |
| **2008** | | | | | | | | |
| Jan. 0 | 2 6·2 | 2 1·7 | 8 9·3 | 4 14·0 | 10 21·4 | 9 26·3 | 8 4·8 | 10 6·4 |
| Feb. 0 | 2 0·1 | 2 1·5 | 8 16·0 | 4 12 6 | 10 22·7 | 9 27·4 | 8 5·8 | 10 4·8 |
| Mar. 0 | 2 4·8 | 2 9·9 | 8 21·6 | 4 10·3 | 10 24·2 | 9 28·5 | 8 6·6 | 10 3·3 |
| Apr. 0 | 2 16·6 | 2 23·5 | 8 26 3 | 4 8·2 | 10 26·0 | 9 29·5 | 8 6·9 | 10 1·7 |
| May 0 | 3 1·1 | 3 9·0 | 8 28·5 | 4 7·3 | 10 27·4 | 10 0·0 | 8 6·7 | 10 0·1 |
| June 0 | 3 17·9 | 3 26·6 | 8 27·9 | 4 8·0 | 10 28·4 | 10 0·1 | 8 5·9 | 9 28·4 |
| July 0 | 4 5·4 | 4 14·3 | 8 24·9 | 4 10·0 | 10 28·6 | 9 29·7 | 8 5·1 | 9 26·8 |
| Aug. 0 | 4 24·1 | 5 3·4 | 8 21·1 | 4 13·3 | 10 28·1 | 9 28·9 | 8 4·5 | 9 25·2 |
| Sept. 0 | 5 13·8 | 5 23·5 | 8 18·8 | 4 17·1 | 10 27·1 | 9 28·1 | 8 4·2 | 9 23·5 |
| Oct. 0 | 6 3·4 | 6 13·5 | 8 19 6 | 4 20 8 | 10 25·9 | 9 27·5 | 8 4·4 | 9 21·9 |
| Nov 0 | 6 24·5 | 7 5·2 | 8 22·9 | 4 24·1 | 10 25·0 | 9 27·3 | 8 5·2 | 9 20·3 |
| Dec. 0 | 7 16·0 | 7 26·9 | 8 28·2 | 4 26·7 | 10 24·7 | 9 27·7 | 8 6·1 | 9 18·7 |
| **2009** | | | | | | | | |
| Jan. 0 | 8 8·8 | 8 20·1 | 9 5·0 | 4 27·4 | 10 25·2 | 9 28·4 | 8 6·9 | 9 17·1 |
| Feb. 0 | 9 2·3 | 9 14·0 | 9 12·2 | 4 26·5 | 10 26·4 | 9 29·5 | 8 7·9 | 9 15·5 |
| Mar. 0 | 9 24·1 | 10 5·9 | 9 18·7 | 4 24·6 | 10 27·9 | 10 0·7 | 8 8·7 | 9 14·0 |
| Apr. 0 | 10 18 3 | 11 0·0 | 9 25·2 | 4 22·3 | 10 29·7 | 10 1·7 | 8 9·0 | 9 12·3 |
| May 0 | 11 11·7 | 11 23·2 | 10 0·0 | 4 20·7 | 11 1·2 | 10 2·3 | 8 8·8 | 9 10·7 |
| June 0 | 0 5·3 | 0 16·4 | 10 2·9 | 4 20·7 | 11 2·2 | 10 2·4 | 8 8·0 | 9 9·1 |
| July 0 | 0 27·4 | 1 8·0 | 10 2·9 | 4 22·1 | 11 2·6 | 10 2·1 | 8 7·2 | 9 7·5 |
| Aug. 0 | 1 19·1 | 1 29·2 | 10 0·2 | 4 24·9 | 11 2·2 | 10 1·4 | 8 6·5 | 9 5·9 |
| Sept. 0 | 2 8·2 | 2 18·6 | 9 26·2 | 4 28·5 | 11 1·2 | 10 0·6 | 8 6·3 | 9 4·2 |
| Oct. 0 | 2 27·3 | 3 5·4 | 9 23·7 | 5 2·2 | 11 0·0 | 9 29·9 | 8 6·5 | 9 2·6 |
| Nov. 0 | 3 13·1 | 3 18 9 | 9 23·9 | 5 5·8 | 10 29·0 | 9 29·7 | 8 7·3 | 9 1·0 |
| Dec. 0 | 3 23·4 | 3 25·7 | 9 26·7 | 5 8·6 | 10 28·6 | 9 29·9 | 8 8·1 | 8 29·4 |
| **2010** | | | | | | | | |
| Jan. 0 | 3 25·3 | 3 21·7 | 10 2·5 | 5 10·1 | 10 29·0 | 10 0·6 | 8 8·9 | 8 27·7 |
| Feb. 0 | 3 15·5 | 3 10·1 | 10 9·2 | 5 10·0 | 11 0·2 | 10 1·6 | 8 9·9 | 8 26·1 |
| Mar. 0 | 3 7·3 | 3 6·7 | 10 16·0 | 5 8·5 | 11 1·6 | 10 2·8 | 8 10·7 | 8 24·6 |
| Apr. 0 | 3 8·9 | 3 12·9 | 10 23·3 | 5 6·2 | 11 3·4 | 10 3·8 | 8 11·0 | 8 22·9 |
| May 0 | 3 18·3 | 3 24·8 | 10 29·8 | 5 4·2 | 11 4·9 | 10 4·4 | 8 10·8 | 8 21·3 |
| June 0 | 4 2·5 | 4 10·3 | 11 5·3 | 5 3 5 | 11 6·1 | 10 4·6 | 8 10·0 | 8 19·7 |
| July 0 | 4 18·6 | 4 27·3 | 11 8·7 | 5 4·3 | 11 6·5 | 10 4·3 | 8 9·2 | 8 18·1 |
| Aug. 0 | 5 6·8 | 5 16·1 | 11 9·5 | 5 6·4 | 11 6·2 | 10 3·6 | 8 8·5 | 8 16·5 |
| Sept. 0 | 5 26·3 | 6 6·2 | 11 7·3 | 5 9·6 | 11 5·3 | 10 2·8 | 8 8·3 | 8 14·8 |
| Oct. 0 | 6 16·3 | 6 26·6 | 11 3·4 | 5 13·4 | 11 4·1 | 10 2·1 | 8 8·5 | 8 13·2 |
| Nov. 0 | 7 8·0 | 7 18·9 | 11 0·3 | 5 17·0 | 11 3·1 | 10 1·8 | 8 9·3 | 8 11·6 |
| Dec. 0 | 8 0·0 | 8 11·3 | 10 29·9 | 5 20·2 | 11 2·6 | 10 2·0 | 8 10·2 | 8 10·0 |
| Dec. 31 | 8 23·5 | 9 5·2 | 11 2·6 | 5 22·3 | 11 2·9 | 10 2·7 | 8 11·3 | 8 8·4 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction Mercury | Days from Conjunction Venus |
|---|---|---|---|---|---|---|---|
| **2011** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Fri. | 8 15 10 | 6 17 19 | 4·21 | 25·166 | 67·6 | 353·2 |
| Feb. 0 | Mon. | 9 16 44 | 8 5 47 | 7·96 | 26·659 | 98·6 | 384·2 |
| Mar. 0 | Mon. | 10 15 2 | 8 14 43 | 8·44 | 25·104 | 10·7 | 412·2 |
| Apr. 0 | Thur. | 11 15 56 | 10 3 11 | 12·20 | 26·597 | 41·7 | 443·2 |
| May 0 | Sat. | 0 15 18 | 11 8 28 | 14·86 | 27·074 | 71·7 | 473·2 |
| June 0 | Tues. | 1 15 13 | 0 26 56 | 18·61 | 28·567 | 102·7 | 504·2 |
| July 0 | Thur. | 2 13 52 | 2 2 14 | 21·27 | 29·043 | 16·8 | 534·2 |
| Aug. 0 | Sun. | 3 13 27 | 3 20 42 | 25·02 | 0·536 | 47·8 | 565·2 |
| Sept. 0 | Wed. | 4 13 15 | 5 9 10 | 28·77 | 2·029 | 78·8 | 12·3 |
| Oct. 0 | Fri. | 5 12 28 | 6 14 27 | 1·44 | 2·506 | 108·8 | 42·3 |
| Nov. 0 | Mon. | 6 13 11 | 8 2 55 | 5·19 | 3·999 | 23·9 | 73·3 |
| Dec. 0 | Wed. | 7 13 23 | 9 8 13 | 7·85 | 4·475 | 53·9 | 103·3 |
| **2012** | | | | | | | |
| Jan. 0 | Sat. | 8 14 55 | 10 26 41 | 11·60 | 5·968 | 84·9 | 134·3 |
| Feb. 0 | Tues. | 9 16 28 | 0 15 9 | 15·35 | 7·461 | 0·1 | 165·3 |
| Mar. 0 | Wed. | 10 15 46 | 1 7 16 | 16·93 | 6·922 | 29·1 | 194·3 |
| Apr. 0 | Sat. | 11 16 39 | 2 25 44 | 20·68 | 8·415 | 60·1 | 225·3 |
| May 0 | Mon. | 0 16 2 | 4 1 1 | 23·34 | 8·892 | 90·1 | 255·3 |
| June 0 | Thur. | 1 15 55 | 5 19 29 | 27·09 | 10·384 | 5·2 | 286·3 |
| July 0 | Sat. | 2 14 35 | 6 24 47 | 29·75 | 10·861 | 35·2 | 316·3 |
| Aug. 0 | Tues. | 3 14 10 | 8 13 15 | 3·51 | 12·354 | 66·2 | 347·3 |
| Sept. 0 | Fri. | 4 13 58 | 10 1 43 | 7·26 | 13·847 | 97·2 | 378·3 |
| Oct. 0 | Sun. | 5 13 12 | 11 7 0 | 9·92 | 14·324 | 11·3 | 408·3 |
| Nov. 0 | Wed. | 6 13 56 | 0 25 28 | 13·67 | 15·816 | 42·3 | 439·3 |
| Dec. 0 | Fri. | 7 14 9 | 2 0 46 | 16·33 | 16·293 | 72·3 | 469·3 |
| **2013** | | | | | | | |
| Jan. 0 | Mon. | 8 15 40 | 3 19 14 | 20·08 | 17·786 | 103·3 | 500·3 |
| Feb. 0 | Thur. | 9 17 14 | 5 7 42 | 23·83 | 19·279 | 18·4 | 531·3 |
| Mar. 0 | Thur. | 10 15 31 | 5 16 38 | 24·32 | 17·724 | 46·4 | 559·3 |
| Apr. 0 | Sun. | 11 16 24 | 7 5 6 | 28·07 | 19·217 | 77·4 | 6·4 |
| May 0 | Tues. | 0 15 47 | 8 10 23 | 0·73 | 19·694 | 107·4 | 36·4 |
| June 0 | Fri. | 1 15 41 | 9 28 51 | 4·49 | 21·186 | 22·5 | 67·4 |
| July 0 | Sun. | 2 14 20 | 11 4 9 | 7·15 | 21·663 | 52·5 | 97·4 |
| Aug. 0 | Wed. | 3 13 55 | 0 22 37 | 10·90 | 23·156 | 83·5 | 128·4 |
| Sept. 0 | Sat. | 4 13 43 | 2 11 5 | 14·65 | 24·649 | 114·5 | 159·4 |
| Oct. 0 | Mon. | 5 12 57 | 3 16 22 | 17·31 | 25·126 | 28·6 | 189·4 |
| Nov. 0 | Thur. | 6 13 41 | 5 4 50 | 21·06 | 26·618 | 59·6 | 220·4 |
| Dec. 0 | Sat. | 7 13 53 | 6 10 8 | 23·73 | 27·095 | 89·6 | 250·4 |
| **2014** | | | | | | | |
| Jan. 0 | Tues. | 8 15 24 | 7 28 36 | 27·48 | 28·588 | 4·8 | 281·4 |
| Feb. 0 | Fri. | 9 16 58 | 9 17 4 | 1·23 | 0·081 | 35·8 | 312·4 |
| Mar. 0 | Fri. | 10 15 16 | 9 26 0 | 1·71 | 28·526 | 63·8 | 340·4 |
| Apr. 0 | Mon. | 11 16 9 | 11 14 28 | 5·47 | 0·019 | 94·8 | 371·4 |
| May 0 | Wed. | 0 15 32 | 0 19 46 | 8·13 | 0·496 | 8·9 | 401·4 |
| June 0 | Sat. | 1 15 26 | 2 8 14 | 11·88 | 1·988 | 39·9 | 432·4 |
| July 0 | Mon. | 2 14 6 | 3 13 31 | 14·54 | 2·465 | 69·9 | 462·4 |
| Aug. 0 | Thur. | 3 13 41 | 5 1 59 | 18·29 | 3·958 | 100·9 | 493·4 |
| Sept. 0 | Sun. | 4 13 28 | 6 20 27 | 22·04 | 5·451 | 16·1 | 524·4 |
| Oct. 0 | Tues. | 5 12 42 | 7 25 45 | 24·71 | 5·928 | 46·1 | 554·4 |
| Nov. 0 | Fri. | 6 13 25 | 9 14 13 | 28·46 | 7·420 | 77·1 | 1·5 |
| Dec. 0 | Sun. | 7 13 37 | 10 19 30 | 1·12 | 7·897 | 107·1 | 31·5 |
| Dec. 31 | Wed. | 8 15 9 | 0 7 58 | 4·87 | 9·390 | 22·2 | 62·5 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2011** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 8 23·5 | 9 5·2 | 11 2·6 | 5 22·3 | 11 2·9 | 10 2·7 | 8 11·3 | 8 8·4 |
| Feb. 0 | 9 17·7 | 9 29·5 | 11 7·6 | 5 22·8 | 11 3·9 | 10 3·7 | 8 12·3 | 8 6·7 |
| Mar. 0 | 10 9·8 | 10 21·6 | 11 13·7 | 5 21·9 | 11 5·4 | 10 5·0 | 8 13·1 | 8 5·2 |
| Apr. 0 | 11 4·2 | 11 15·9 | 11 21·1 | 5 19·8 | 11 7·1 | 10 6·0 | 8 13·5 | 8 3·6 |
| May 0 | 11 27·4 | 0 9·0 | 11 28·3 | 5 17·7 | 11 8·7 | 10 6·7 | 8 13·6 | 8 2·0 |
| June 0 | 0 20·7 | 1 1·6 | 0 5·2 | 5 16·2 | 11 9·9 | 10 6·9 | 8 13·1 | 8 0·4 |
| July 0 | 1 12·3 | 1 22·9 | 0 10·9 | 5 16·4 | 11 10·4 | 10 6·6 | 8 12·3 | 7 28·8 |
| Aug. 0 | 2 3·8 | 2 13·9 | 0 15·0 | 5 17·9 | 11 10·3 | 10 5·9 | 8 11·5 | 7 27·1 |
| Sept. 0 | 2 24·3 | 3 3·7 | 0 16·5 | 5 20·8 | 11 9·4 | 10 5·1 | 8 11·1 | 7 25·5 |
| Oct. 0 | 3 12·7 | 3 21·5 | 0 14·9 | 5 24·2 | 11 8·2 | 10 4·4 | 8 11·1 | 7 23·9 |
| Nov. 0 | 4 0·4 | 4 8·1 | 0 11·2 | 5 28·0 | 11 7·1 | 10 4·1 | 8 11·5 | 7 22·2 |
| Dec. 0 | 4 15·2 | 4 21·2 | 0 7·6 | 6 1·4 | 11 6·6 | 10 4·3 | 8 12·3 | 7 20·7 |
| **2012** | | | | | | | | |
| Jan. 0 | 4 26·2 | 4 28·8 | 0 6·5 | 6 3·9 | 11 6·8 | 10 4·9 | 8 13·2 | 7 19·0 |
| Feb. 0 | 4 29·0 | 4 26·3 | 0 8·7 | 6 5·2 | 11 7·7 | 10 5·9 | 8 14·2 | 7 17·4 |
| Mar. 0 | 4 21·4 | 4 15·6 | 0 13·0 | 6 4·7 | 11 9·1 | 10 7·1 | 8 15·1 | 7 15·9 |
| Apr. 0 | 4 11·1 | 4 10·1 | 0 19·2 | 6 3·0 | 11 10·9 | 10 8·1 | 8 15·5 | 7 14·2 |
| May 0 | 4 11·5 | 4 15·[illegible] | 0 26·2 | 6 0·8 | 11 12·5 | 10 8·8 | 8 15·6 | 7 12·7 |
| June 0 | 4 20·6 | 4 27·0 | 1 3·4 | 5 29·0 | 11 13·8 | 10 9·1 | 8 15·0 | 7 11·0 |
| July 0 | 5 4·3 | 5 12·4 | 1 10·1 | 5 28·5 | 11 14·4 | 10 8·8 | 8 14·2 | 7 9·4 |
| Aug. 0 | 5 21·6 | 6 0·7 | 1 16·2 | 5 29·5 | 11 14·3 | 10 8·2 | 8 13·5 | 7 7·8 |
| Sept. 0 | 6 10·8 | 6 20·7 | 1 20·1 | 6 1·9 | 11 13·5 | 10 7·7 | 8 13·0 | 7 6·1 |
| Oct. 0 | 7 1·0 | 7 11·2 | 1 22·5 | 6 5·1 | 11 12·3 | 10 6·6 | 8 13·0 | 7 4·5 |
| Nov. 0 | 7 23·2 | 8 4·3 | 1 21·3 | 6 8·8 | 11 11·2 | 10 6·2 | 8 13·4 | 7 2·9 |
| Dec. 0 | 8 15·7 | 8 27·3 | 1 17·8 | 6 12·3 | 11 10·6 | 10 6·4 | 8 14·2 | 7 1·3 |
| **2013** | | | | | | | | |
| Jan. 0 | 9 9·7 | 9 21·5 | 1 13·9 | 6 15·2 | 11 10·7 | 10 7·0 | 8 15·2 | 6 29·7 |
| Feb. 0 | 10 4·2 | 10 16·1 | 1 12·4 | 6 16·9 | 11 11·6 | 10 8·0 | 8 16·2 | 6 28·0 |
| Mar. 0 | 10 26·3 | 11 8·0 | 1 13·9 | 6 17·2 | 11 12·9 | 10 9·3 | 8 17·1 | 6 26·5 |
| Apr. 0 | 11 20·3 | 0 1·7 | 1 17·8 | 6 15·9 | 11 14·6 | 10 10·3 | 8 17·5 | 6 24·9 |
| May 0 | 0 13·1 | 0 21·1 | 1 23·4 | 6 13·8 | 11 16·3 | 10 11·1 | 8 17·6 | 6 23·3 |
| June 0 | 1 5·6 | 1 16·3 | 2 0·1 | 6 11·6 | 11 17·6 | 10 11·3 | 8 17·0 | 6 21·7 |
| July 0 | 1 26·9 | 2 7·1 | 2 7·0 | 6 10·6 | 11 18·3 | 10 11·1 | 8 16·2 | 6 20·1 |
| Aug. 0 | 2 17·9 | 2 27·7 | 2 13·9 | 6 11·0 | 11 18·3 | 10 10·4 | 8 15·5 | 6 18·4 |
| Sept. 0 | 3 8·1 | 3 17·6 | 2 19·9 | 6 12·8 | 11 17·6 | 10 9·6 | 8 15·0 | 6 16·8 |
| Oct. 0 | 3 26·9 | 4 [illegible]·9 | 2 24·3 | 6 15·7 | 11 16·5 | 10 8·9 | 8 15·0 | 6 15·2 |
| Nov. 0 | 4 15·4 | 4 23·9 | 2 26·5 | 6 19·1 | 11 15·3 | 10 8·5 | 8 15·4 | 6 13·6 |
| Dec. 0 | 5 2·1 | 5 9·6 | 2 25·7 | 6 22·8 | 11 14·6 | 10 8·7 | 8 16·2 | 6 12·0 |
| **2014** | | | | | | | | |
| Jan. 0 | 5 17·4 | 5 23·7 | 2 22·3 | 6 26·0 | 11 14·6 | 10 9·3 | 8 17·1 | 6 10·3 |
| Feb. 0 | 5 29·1 | 6 2·5 | 2 18·4 | 6 28·3 | 11 15·4 | 10 10·2 | 8 18·0 | 6 8·7 |
| Mar. 0 | 6 3·7 | 6 2·7 | 2 16·5 | 6 29·0 | 11 16·6 | 10 11·4 | 8 19·0 | 6 7·2 |
| Apr. 0 | 5 28·3 | 5 22·6 | 2 17·4 | 6 28·4 | 11 18·3 | 10 12·4 | 8 19·5 | 6 5·5 |
| May 0 | 5 17·7 | 5 15·3 | 2 20·9 | 6 26·7 | 11 20·0 | 10 13·2 | 8 19·6 | 6 3·9 |
| June 0 | 5 15·8 | 5 19·0 | 2 26·2 | 6 24·2 | 11 21·4 | 10 13·5 | 8 19·0 | 6 2·3 |
| July 0 | 5 24·1 | 6 0·4 | 3 2·5 | 6 22·7 | 11 22·2 | 10 13·3 | 8 18·1 | 6 0·7 |
| Aug. 0 | 6 8·1 | 6 17·1 | 3 9·3 | 6 22·3 | 11 22·4 | 10 12·7 | 8 17·4 | 5 29·0 |
| Sept. 0 | 6 27·0 | 7 6·7 | 3 16·1 | 6 23·7 | 11 21·7 | 10 11·9 | 8 16·9 | 5 27·4 |
| Oct. 0 | 7 16·9 | 7 27·5 | 3 21·8 | 6 26·2 | 11 20·6 | 10 11·[illegible] | 8 16·9 | 5 25·8 |
| Nov. 0 | 8 9·1 | 8 20·6 | 3 26·3 | 6 29·7 | 11 19·4 | 10 10·7 | 8 17·3 | 5 24·2 |
| Dec. 0 | 9 2·0 | 9 13·5 | 3 28·6 | 7 3·1 | 11 18·6 | 10 10·8 | 8 18·1 | 5 22·6 |
| Dec. 31 | 9 26·1 | 10 7·8 | 3 27·8 | 7 6·6 | 11 18·5 | 10 11·4 | 8 19·1 | 5 20·9 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **2015** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Wed. | 8 15 9 | 0 7 58 | 4·87 | 9·390 | 22·2 | 62·5 |
| Feb. 0 | Sat. | 9 16 42 | 1 26 26 | 8·62 | 10·883 | 53·2 | 93·5 |
| Mar. 0 | Sat. | 10 15 0 | 2 5 22 | 9·11 | 9·328 | 81·2 | 121·5 |
| Apr. 0 | Tues. | 11 15 54 | 3 23 50 | 12·86 | 10·821 | 112·2 | 152·5 |
| May 0 | Thur. | 0 15 17 | 4 29 8 | 15·52 | 11·297 | 26·3 | 182·5 |
| June 0 | Sun. | 1 15 11 | 6 17 36 | 19·27 | 12·790 | 57·3 | 213·5 |
| July 0 | Tues. | 2 13 51 | 7 22 53 | 21·93 | 13·267 | 87·3 | 243·5 |
| Aug. 0 | Fri. | 3 13 26 | 9 11 21 | 25·69 | 14·760 | 2·4 | 274·5 |
| Sept. 0 | Mon. | 4 13 13 | 10 29 49 | 29·44 | 16 253 | 33·4 | 305·5 |
| Oct. 0 | Wed. | 5 12 27 | 0 5 7 | 2·10 | 16·730 | 63·4 | 335·5 |
| Nov. 0 | Sat. | 6 13 10 | 1 23 35 | 5·85 | 18·222 | 94·4 | 366·5 |
| Dec. 0 | Mon. | 7 13 22 | 2 28 52 | 8·51 | 18·699 | 8·5 | 396·5 |
| **2016** | | | | | | | |
| Jan. 0 | Thur. | 8 14 53 | 4 17 20 | 12·26 | 20·192 | 39·5 | 427·5 |
| Feb. 0 | Sun. | 9 16 27 | 6 5 48 | 16·02 | 21·685 | 70·5 | 458·5 |
| Mar. 0 | Mon. | 10 15 45 | 6 27 55 | 17·59 | 21·146 | 99·5 | 487·5 |
| Apr. 0 | Thur. | 11 16 38 | 8 16 23 | 21·34 | 22·638 | 14·7 | 518·5 |
| May 0 | Sat. | 0 16 0 | 9 21 41 | 24·60 | 23·115 | 44·7 | 548·5 |
| June 0 | Tues. | 1 15 54 | 11 10 9 | 27·75 | 24·608 | 75·7 | 579·5 |
| July 0 | Thur. | 2 14 34 | 0 15 26 | 0·42 | 25·085 | 105·7 | 25·6 |
| Aug. 0 | Sun. | 3 14 8 | 2 3 54 | 4·17 | 26·578 | 20·8 | 56 6 |
| Sept. 0 | Wed. | 4 13 56 | 3 22 22 | 7·92 | 28·071 | 51·8 | 87·6 |
| Oct. 0 | Fri. | 5 13 11 | 4 27 40 | 10·58 | 28·547 | 81·8 | 117·6 |
| Nov. 0 | Mon. | 6 13 54 | 6 16 8 | 14·33 | 0·040 | 112·8 | 148 6 |
| Dec. 0 | Wed. | 7 14 7 | 7 21 25 | 16 99 | 0·517 | 26·9 | 178·6 |
| **2017** | | | | | | | |
| Jan. 0 | Sat. | 8 15 39 | 9 9 53 | 20·75 | 2·010 | 57·9 | 209·6 |
| Feb. 0 | Tues. | 9 17 12 | 10 28 21 | 24·50 | 3·503 | 88·9 | 240·6 |
| Mar. 0 | Tues. | 10 15 29 | 11 7 17 | 24·98 | 1·948 | 1·0 | 268·6 |
| Apr. 0 | Fri. | 11 16 22 | 0 25 45 | 28·73 | 3·410 | 32·0 | 299·6 |
| May 0 | Sun. | 0 15 45 | 2 1 3 | 1·40 | 3·917 | 62·0 | 329·6 |
| June 0 | Wed. | 1 15 39 | 3 19 31 | 5·15 | 5·410 | 93 0 | 360·6 |
| July 0 | Fri. | 2 14 19 | 4 24 48 | 7·81 | 5·887 | 7·2 | 390·6 |
| Aug. 0 | Mon. | 3 13 54 | 6 13 16 | 11·56 | 7·380 | 38·2 | 421·6 |
| Sept. 0 | Thur. | 4 13 41 | 8 1 44 | 15·31 | 8·872 | 69·2 | 452·6 |
| Oct. 0 | Sat. | 5 12 56 | 9 7 2 | 17·98 | 9·349 | 99·2 | 482·6 |
| Nov. 0 | Tues. | 6 13 39 | 10 25 30 | 21·73 | 10·842 | 14·3 | 513·6 |
| Dec. 0 | Thur. | 7 13 51 | 0 0 47 | 24·39 | 11·319 | 44·3 | 543·6 |
| **2018** | | | | | | | |
| Jan. 0 | Sun. | 8 15 23 | 1 19 15 | 28·14 | 12·812 | 75·3 | 574·6 |
| Feb. 0 | Wed. | 9 16 57 | 3 7 43 | 1·89 | 14·305 | 106·3 | 21·6 |
| Mar. 0 | Wed. | 10 15 14 | 3 16 40 | 2·38 | 12·750 | 18·4 | 49·6 |
| Apr. 0 | Sat. | 11 16 7 | 5 5 8 | 6·13 | 14·242 | 49·4 | 80·6 |
| May 0 | Mon. | 0 15 30 | 6 10 25 | 8·79 | 14·719 | 79·4 | 110·6 |
| June 0 | Thur. | 1 15 24 | 7 28 53 | 12·54 | 16·212 | 110·4 | 141·6 |
| July 0 | Sat. | 2 14 4 | 9 4 11 | 15·20 | 16·689 | 24·5 | 171·6 |
| Aug. 0 | Tues. | 3 13 39 | 10 22 39 | 18·96 | 18·182 | 55·5 | 202·6 |
| Sept. 0 | Fri. | 4 13 27 | 0 11 7 | 22·71 | 19·674 | 86·5 | 233·6 |
| Oct. 0 | Sun. | 5 12 40 | 1 16 24 | 25·37 | 20·151 | 0·6 | 263·6 |
| Nov. 0 | Wed. | 6 13 24 | 3 4 52 | 29·12 | 21·644 | 31·6 | 294·6 |
| Dec. 0 | Fri. | 7 13 36 | 4 10 10 | 1·78 | 22·121 | 61·6 | 324·6 |
| Dec. 31 | Mon. | 8 15 7 | 5 28 38 | 5·53 | 23·614 | 92·6 | 355·6 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2015** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 9 26·1 | 10 7·8 | 3 27·8 | 7 6·6 | 11 18·5 | 10 11·4 | 8 19·1 | 5 20·9 |
| Feb. 0 | 10 20·4 | 11 2·0 | 3 24·6 | 7 9·2 | 11 19·2 | 10 12·3 | 8 20·0 | 5 19·3 |
| Mar. 0 | 11 12·0 | 11 23·4 | 3 21·0 | 7 10·5 | 11 20·4 | 10 13·6 | 8 20·9 | 5 17·8 |
| Apr. 0 | 0 5·3 | 0 16·5 | 3 18·7 | 7 10·4 | 11 22·1 | 10 14·6 | 8 21·3 | 5 16·2 |
| May 0 | 0 27·3 | 1 8·0 | 3 19·4 | 7 9·0 | 11 23·8 | 10 15·5 | 8 21·2 | 5 14·6 |
| June 0 | 1 19·2 | 1 29·6 | 3 22·5 | 7 6·7 | 11 25·2 | 10 15·8 | 8 20·8 | 5 12·9 |
| July 0 | 2 9·8 | 2 19·8 | 3 27·5 | 7 4·9 | 11 26·1 | 10 15·7 | 8 20·1 | 5 11·3 |
| Aug. 0 | 3 0·3 | 3 10·1 | 4 3·6 | 7 4·0 | 11 26·4 | 10 15·0 | 8 19·3 | 5 9·7 |
| Sept. 0 | 3 20·3 | 3 29·8 | 4 10·3 | 7 4·7 | 11 25·8 | 10 14·2 | 8 18·8 | 5 8·0 |
| Oct. 0 | 4 9·3 | 4 18·6 | 4 16·7 | 7 6·7 | 11 24·8 | 10 13·5 | 8 18·8 | 5 6·5 |
| Nov. 0 | 4 28·4 | 5 7·5 | 4 22·6 | 7 9·8 | 11 23·6 | 10 12·9 | 8 19·3 | 5 4·8 |
| Dec. 0 | 5 16·5 | 5 25·1 | 4 26·9 | 7 13·2 | 11 22·7 | 10 12·8 | 8 20·0 | 5 3·2 |
| **2016** | | | | | | | | |
| Jan. 0 | 6 4·2 | 6 12·3 | 4 29·2 | 7 16·8 | 11 22·5 | 10 13·6 | 8 20·9 | 5 1·6 |
| Feb. 0 | 6 20·5 | 6 27·7 | 4 28·4 | 7 19·8 | 11 23·0 | 10 14·4 | 8 21·8 | 4 29·9 |
| Mar. 0 | 7 3·6 | 7 9·0 | 4 25·4 | 7 21·6 | 11 24·2 | 10 15·7 | 8 22·7 | 4 28·4 |
| Apr. 0 | 7 13·0 | 7 14·6 | 4 21·6 | 7 22·1 | 11 25·9 | 10 16·7 | 8 23·1 | 4 26·8 |
| May 0 | 7 13·6 | 7 9·6 | 4 19·4 | 7 21·1 | 11 27·6 | 10 17·6 | 8 23·0 | 4 25·2 |
| June 0 | 7 4·1 | 7 0·0 | 4 20·0 | 7 19·1 | 11 29·1 | 10 18·0 | 8 22·6 | 4 23·6 |
| July 0 | 6 28·6 | 7 0·1 | 4 23·0 | 7 17·0 | 0 0·1 | 10 17·9 | 8 21·9 | 4 22·0 |
| Aug. 0 | 7 4·7 | 7 10·9 | 4 27·9 | 7 15·7 | 0 0·4 | 10 17·4 | 8 21·1 | 4 20·4 |
| Sept. 0 | 7 19·1 | 7 27·9 | 5 4·1 | 7 15·8 | 11 29·9 | 10 16·6 | 8 20·6 | 4 18·7 |
| Oct. 0 | 8 7·4 | 8 17·6 | 5 10·5 | 7 17·3 | 11 28·9 | 10 15·7 | 8 20·6 | 4 17·1 |
| Nov. 0 | 8 29·0 | 9 9·9 | 5 17·1 | 7 20·1 | 11 27·7 | 10 15·2 | 8 21·1 | 4 15·5 |
| Dec. 0 | 9 21·1 | 10 2·4 | 5 22·7 | 7 23·4 | 11 26·7 | 10 15·2 | 8 21·8 | 4 13·9 |
| **2017** | | | | | | | | |
| Jan. 0 | 10 14·5 | 10 25·9 | 5 27·1 | 7 27·0 | 11 26·4 | 10 15·7 | 8 22·8 | 4 12·2 |
| Feb. 0 | 11 7·9 | 11 19·0 | 5 29·2 | 8 0·3 | 11 26·9 | 10 16·5 | 8 23·7 | 4 10·6 |
| Mar. 0 | 11 28·6 | 0 9·5 | 5 28·5 | 8 2·4 | 11 28·0 | 10 17·6 | 8 24·6 | 4 9·1 |
| Apr. 0 | 0 20·9 | 1 1·6 | 5 25·3 | 8 3·5 | 11 29·6 | 10 18·7 | 8 25·0 | 4 7·5 |
| May 0 | 1 11·8 | 1 22·2 | 5 21·5 | 8 3·1 | 0 1·3 | 10 19·7 | 8 24·9 | 4 5·9 |
| June 0 | 2 3·0 | 2 12·9 | 5 19·4 | 8 1·3 | 0 2·9 | 10 20·1 | 8 24·5 | 4 4·3 |
| July 0 | 2 22·7 | 3 2·6 | 5 19·9 | 7 29·2 | 0 4·0 | 10 20·0 | 8 23·8 | 4 2·7 |
| Aug. 0 | 3 12·9 | 3 22·5 | 5 22·9 | 7 27·4 | 0 4·4 | 10 19·6 | 8 23·0 | 4 1·0 |
| Sept. 0 | 4 2·7 | 4 12·2 | 5 27·9 | 7 26·9 | 0 4·0 | 10 18·8 | 8 22·5 | 3 29·4 |
| Oct. 0 | 4 21·8 | 5 1·3 | 6 3·8 | 7 28·0 | 0 3·1 | 10 18·0 | 8 22·5 | 3 27·8 |
| Nov. 0 | 5 11·3 | 5 20·8 | 6 10·6 | 8 0·3 | 0 1·9 | 10 17·4 | 8 23·0 | 3 26·1 |
| Dec. 0 | 6 0·2 | 6 9·6 | 6 16·9 | 8 3·4 | 0 0·9 | 10 17·4 | 8 23·7 | 3 24·5 |
| **2018** | | | | | | | | |
| Jan. 0 | 6 19·6 | 6 29·0 | 6 22·9 | 8 7·1 | 0 0·4 | 10 17·8 | 8 24·6 | 3 22·9 |
| Feb. 0 | 7 8·8 | 7 17·8 | 6 27·1 | 8 10·5 | 0 0·8 | 10 18·6 | 8 25·5 | 3 21·3 |
| Mar. 0 | 7 25·6 | 8 4·3 | 6 29·1 | 8 13·0 | 0 1·8 | 10 19·7 | 8 26·4 | 3 19·8 |
| Apr. 0 | 8 13·3 | 8 21·1 | 6 28·5 | 8 14·6 | 0 3·4 | 10 20·8 | 8 27·3 | 3 18·1 |
| May 0 | 8 28·4 | 9 4·8 | 6 25·5 | 8 14·8 | 0 5·1 | 10 21·8 | 8 28·0 | 3 16·5 |
| June 0 | 9 10·1 | 9 13·1 | 6 21·8 | 8 13·5 | 0 6·7 | 10 22·2 | 8 28·1 | 3 14·9 |
| July 0 | 9 13·7 | 9 11·1 | 6 19·6 | 8 11·4 | 0 7·9 | 10 22·2 | 8 28·0 | 3 13·3 |
| Aug. 0 | 9 7·0 | 9 3·8 | 6 20·0 | 8 9·4 | 0 8·4 | 10 21·8 | 8 27·2 | 3 11·6 |
| Sept. 0 | 9 3·0 | 9 5·3 | 6 23·0 | 8 8·3 | 0 8·2 | 10 21·0 | 8 26·5 | 3 10·0 |
| Oct. 0 | 9 10·4 | 9 17·2 | 6 28·0 | 8 8·7 | 0 7·3 | 10 20·2 | 8 25·9 | 3 8·4 |
| Nov. 0 | 9 25·9 | 10 4·8 | 7 4·2 | 8 10·6 | 0 6·0 | 10 19·6 | 8 25·7 | 3 6·8 |
| Dec. 0 | 10 14·3 | 10 24·1 | 7 10·8 | 8 13·5 | 0 5·0 | 10 19·4 | 8 25·9 | 3 5·2 |
| Dec. 31 | 11 4·9 | 11 15·0 | 7 17·7 | 8 17·0 | 0 4·5 | 10 19·9 | 8 26·5 | 3 3·5 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **2019** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Mon. | 8 15 7 | 5 28 38 | 5·53 | 23·614 | 92·6 | 355·6 |
| Feb. 0 | Thur. | 9 16 41 | 7 17 6 | 9·29 | 25·106 | 7·8 | 386·6 |
| Mar. 0 | Thur. | 10 14 59 | 7 26 2 | 9·77 | 23·552 | 35·8 | 414·6 |
| Apr. 0 | Sun. | 11 15 52 | 9 14 30 | 13·52 | 25·044 | 66·8 | 445·6 |
| May 0 | Tues. | 0 15 15 | 10 19 47 | 16·18 | 25·521 | 96·8 | 475·6 |
| June 0 | Fri. | 1 15 10 | 0 8 15 | 19·94 | 27·014 | 11·9 | 506·6 |
| July 0 | Sun. | 2 13 50 | 1 13 33 | 22·60 | 27·491 | 41·9 | 536·6 |
| Aug. 0 | Wed. | 3 13 24 | 3 2 1 | 26·35 | 28·984 | 72·9 | 567·6 |
| Sept. 0 | Sat. | 4 13 12 | 4 20 29 | 0·10 | 0·476 | 103·9 | 14·7 |
| Oct. 0 | Mon. | 5 12 25 | 5 25 46 | 2·76 | 0·953 | 18·0 | 44·7 |
| Nov. 0 | Thur. | 6 13 8 | 7 14 14 | 6·51 | 2·446 | 49·0 | 75·7 |
| Dec. 0 | Sat. | 7 13 20 | 8 19 32 | 9·18 | 2·923 | 79·0 | 105·7 |
| **2020** | | | | | | | |
| Jan. 0 | Tues. | 8 14 52 | 10 8 0 | 12·93 | 4·416 | 110·0 | 136·7 |
| Feb. 0 | Fri. | 9 16 25 | 11 26 28 | 16·68 | 5·908 | 25·1 | 167·7 |
| Mar. 0 | Sat. | 10 15 43 | 0 18 35 | 18·25 | 5·369 | 54·1 | 196·7 |
| Apr. 0 | Tues. | 11 16 36 | 2 7 3 | 22·00 | 6·862 | 85·1 | 227·7 |
| May 0 | Thur. | 0 15 59 | 3 12 20 | 24·67 | 7·339 | 115·1 | 257·7 |
| June 0 | Sun. | 1 15 52 | 5 0 48 | 28·42 | 8·832 | 30·3 | 288·7 |
| July 0 | Tues. | 2 14 32 | 6 6 6 | 1·08 | 9·309 | 60·3 | 318·7 |
| Aug. 0 | Fri. | 3 14 7 | 7 24 34 | 4·83 | 10·801 | 91·3 | 349·7 |
| Sept. 0 | Mon. | 4 13 55 | 9 13 2 | 8·58 | 12·294 | 6·4 | 380·7 |
| Oct. 0 | Wed. | 5 13 9 | 10 18 19 | 11·24 | 12·771 | 36·4 | 410·7 |
| Nov. 0 | Sat. | 6 13 53 | 0 6 47 | 15·00 | 14·264 | 67·4 | 441·7 |
| Dec. 0 | Mon. | 7 14 5 | 1 12 5 | 17·66 | 14·741 | 97·4 | 471·7 |
| **2021** | | | | | | | |
| Jan. 0 | Thur. | 8 15 37 | 3 0 33 | 21·41 | 16·234 | 12·5 | 502·7 |
| Feb. 0 | Sun. | 9 17 11 | 4 19 1 | 25·16 | 17·726 | 43·5 | 533·7 |
| Mar. 0 | Sun. | 10 15 28 | 4 27 57 | 25·65 | 16·171 | 71·5 | 561·7 |
| Apr. 0 | Wed. | 11 16 21 | 6 16 25 | 29·40 | 17·664 | 102·5 | 8·8 |
| May 0 | Fri. | 0 15 44 | 7 21 42 | 2·06 | 18·141 | 16·6 | 38·8 |
| June 0 | Mon. | 1 15 38 | 9 10 11 | 5·81 | 19·634 | 47·6 | 69·8 |
| July 0 | Wed. | 2 14 17 | 10 15 28 | 8·47 | 20·111 | 77·6 | 99·8 |
| Aug. 0 | Sat. | 3 13 52 | 0 3 56 | 12·22 | 21·603 | 108·6 | 130·8 |
| Sept. 0 | Tues. | 4 13 40 | 1 22 24 | 15·98 | 23·096 | 23·7 | 161·8 |
| Oct. 0 | Thur. | 5 12 54 | 2 27 41 | 18·64 | 23·573 | 53·7 | 191·8 |
| Nov. 0 | Sun. | 6 13 38 | 4 16 9 | 22·39 | 25·066 | 84·7 | 222·8 |
| Dec. 0 | Tues. | 7 13 50 | 5 21 27 | 25·05 | 25·543 | 114·7 | 252·8 |
| **2022** | | | | | | | |
| Jan. 0 | Fri. | 8 15 21 | 7 9 55 | 28·80 | 27·035 | 29·9 | 283·8 |
| Feb. 0 | Mon. | 9 16 55 | 8 28 23 | 2·55 | 28·528 | 60·9 | 314·8 |
| Mar. 0 | Mon. | 10 15 12 | 9 7 19 | 3·04 | 26·973 | 88·9 | 342·8 |
| Apr. 0 | Thur. | 11 16 6 | 10 25 47 | 6·79 | 28·466 | 4·0 | 373·8 |
| May 0 | Sat. | 0 15 29 | 0 1 5 | 9·45 | 28·943 | 34·0 | 403·8 |
| June 0 | Tues. | 1 15 23 | 1 19 33 | 13·20 | 0·436 | 65·0 | 434·8 |
| July 0 | Thur. | 2 14 3 | 2 24 50 | 15·87 | 0·913 | 95·0 | 464·8 |
| Aug. 0 | Sun. | 3 13 38 | 4 13 18 | 19·62 | 2·405 | 10·1 | 495·8 |
| Sept. 0 | Wed. | 4 13 25 | 6 1 46 | 23·37 | 3·898 | 41·1 | 526·8 |
| Oct. 0 | Fri. | 5 12 39 | 7 7 4 | 26·03 | 4·375 | 71·1 | 556·8 |
| Nov. 0 | Mon. | 6 13 22 | 8 25 32 | 29·78 | 5·868 | 102·1 | 3·9 |
| Dec. 0 | Wed. | 7 13 35 | 10 0 49 | 2·45 | 6·345 | 16·2 | 33·9 |
| Dec. 31 | Sat. | 8 15 6 | 11 19 17 | 6·20 | 7·837 | 47·2 | 64·9 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2019** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 11 4·9 | 11 15·0 | 7 17·7 | 8 17·0 | 0 4·5 | 10 19·9 | 8 26·5 | 3 3·5 |
| Feb. 0 | 11 26·0 | 0 6·1 | 7 23·7 | 8 20 6 | 0 4·8 | 10 20·7 | 8 27·3 | 3 1 9 |
| Mar. 0 | 0 15·0 | 0 25·0 | 7 28·2 | 8 23·4 | 0 5·7 | 10 21·8 | 8 28·2 | 3 0·4 |
| Apr. 0 | 1 5·8 | 1 15·7 | 8 0·4 | 8 25·5 | 0 7·2 | 10 23·0 | 8 29·1 | 2 28·7 |
| May 0 | 1 25·6 | 2 5·4 | 7 29·8 | 8 26·2 | 0 8·9 | 10 24 0 | 8 29·8 | 2 27·2 |
| June 0 | 2 15·6 | 2 25·3 | 7 26 9 | 8 25·5 | 0 10·6 | 10 24·5 | 9 0 0 | 2 25·5 |
| July 0 | 3 4·9 | 3 14·4 | 7 23·1 | 8 23 5 | 0 11·8 | 10 24·5 | 8 29·8 | 2 23 9 |
| Aug. 0 | 3 24·6 | 4 4·1 | 7 20·8 | 8 21·4 | 0 12·4 | 10 24·1 | 8 29 0 | 2 22 3 |
| Sept. 0 | 4 14·3 | 4 23·9 | 7 21·1 | 8 19·9 | 0 12·3 | 10 23 3 | 8 28·3 | 2 20·6 |
| Oct. 0 | 5 3·5 | 5 13·1 | 7 24·0 | 8 19·7 | 0 11·5 | 10 22·5 | 8 27·7 | 2 19·0 |
| Nov. 0 | 5 23·5 | 6 3·2 | 7 29·2 | 8 21·1 | 0 10·3 | 10 21·9 | 8 27·5 | 2 17·4 |
| Dec. 0 | 6 13·1 | 6 23·2 | 8 5·4 | 8 23·6 | 0 9·2 | 10 21·8 | 8 27·7 | 2 15·8 |
| **2020** | | | | | | | | |
| Jan. 0 | 7 3·7 | 7 13·8 | 8 12·5 | 8 27·0 | 0 8·5 | 10 22·2 | 8 28·2 | 2 14·2 |
| Feb. 0 | 7 24·7 | 8 4·9 | 8 19·5 | 9 0·7 | 0 8·7 | 10 22·9 | 8 29·1 | 2 12·5 |
| Mar. 0 | 8 14·5 | 8 24·8 | 8 25·4 | 9 3·8 | 0 9·6 | 10 24·0 | 9 0 0 | 2 11·0 |
| Apr. 0 | 9 5·8 | 9 16·2 | 9 0·3 | 9 6·3 | 0 11·1 | 10 25·1 | 9 0 9 | 2 9·4 |
| May 0 | 9 26·5 | 10 6·8 | 9 2·7 | 9 7·6 | 0 12·8 | 10 26·1 | 9 1·6 | 2 7·8 |
| June 0 | 10 17·5 | 10 27·2 | 9 2·8 | 9 7·3 | 0 14·5 | 10 26·6 | 9 1·8 | 2 6·2 |
| July 0 | 11 6·5 | 11 15·0 | 9 0·2 | 9 5·8 | 0 15·7 | 10 26·7 | 9 1·6 | 2 4·6 |
| Aug. 0 | 11 22·9 | 11 28·7 | 8 26·3 | 9 3·6 | 0 16·5 | 10 26 3 | 9 0 8 | 2 2·9 |
| Sept. 0 | 0 2·1 | 0 2·3 | 8 23·7 | 9 1·7 | 0 16·4 | 10 25·5 | 9 0·2 | 2 1·3 |
| Oct. 0 | 11 29·5 | 11 25·0 | 8 23 9 | 9 1·0 | 0 15·7 | 10 24·7 | 8 29·5 | 1 29·7 |
| Nov. 0 | 11 21·1 | 11 20·1 | 8 26·9 | 9 1·9 | 0 14·5 | 10 24·1 | 8 29·3 | 1 28 1 |
| Dec. 0 | 11 22·0 | 11 26·2 | 9 2·0 | 9 4·0 | 0 13 3 | 10 23·9 | 8 29·4 | 1 26·5 |
| **2021** | | | | | | | | |
| Jan. 0 | 0 2·5 | 0 9·5 | 9 8·6 | 9 7·2 | 0 12·6 | 10 24·3 | 8 29·9 | 1 24·8 |
| Feb. 0 | 0 17·8 | 0 26·1 | 9 16·0 | 9 10·9 | 0 12·7 | 10 25·0 | 9 0·9 | 1 23·2 |
| Mar. 0 | 1 3·5 | 1 12·3 | 9 22·4 | 9 14·1 | 0 13·5 | 10 26·2 | 9 1·8 | 1 21·7 |
| Apr. 0 | 1 21·8 | 2 0 9 | 9 29·0 | 9 17·0 | 0 14 9 | 10 27·4 | 9 2·7 | 1 20·1 |
| May 0 | 2 10·0 | 2 19·2 | 10 4·2 | 9 18·8 | 0 16·6 | 10 28·4 | 9 3·4 | 1 18·5 |
| June 0 | 2 29·0 | 3 8·3 | 10 7·5 | 9 19·1 | 0 18 3 | 10 29·0 | 9 3·6 | 1 16·8 |
| July 0 | 3 17·5 | 3 26·9 | 10 8·0 | 9 18·1 | 0 19·7 | 10 29·1 | 9 3·4 | 1 15·2 |
| Aug. 0 | 4 6·9 | 4 16·3 | 10 5·8 | 9 16·0 | 0 20·5 | 10 28·8 | 9 2·6 | 1 13 6 |
| Sept. 0 | 4 26·5 | 5 6·1 | 10 1·8 | 9 13·8 | 0 20·5 | 10 28 1 | 9 2·0 | 1 11·9 |
| Oct. 0 | 5 15·9 | 5 25·7 | 9 28·9 | 9 12·6 | 0 19·9 | 10 27·3 | 9 1·4 | 1 10·3 |
| Nov. 0 | 6 6·3 | 6 16·4 | 9 28·6 | 9 12·9 | 0 18 7 | 10 26·6 | 9 1·1 | 1 8·7 |
| Dec. 0 | 6 26·7 | 7 7·1 | 10 1·3 | 9 14·6 | 0 17·5 | 10 26·4 | 9 1·2 | 1 7·1 |
| **2022** | | | | | | | | |
| Jan. 0 | 7 18·3 | 7 29·0 | 10 6·3 | 9 17·5 | 0 16·7 | 10 26·6 | 9 1·6 | 1 5·5 |
| Feb. 0 | 8 10·6 | 8 21·5 | 10 13·0 | 9 21·1 | 0 16 7 | 10 27·3 | 9 2·7 | 1 3·8 |
| Mar. 0 | 9 1·1 | 9 12·3 | 10 19·7 | 9 24·4 | 0 17·4 | 10 28 3 | 9 3·5 | 1 2·3 |
| Apr. 0 | 9 24·3 | 10 5·6 | 10 27·1 | 9 27·6 | 0 18·7 | 10 29·5 | 9 4·4 | 1 0·7 |
| May 0 | 10 16·9 | 10 28·2 | 11 3·7 | 9 29·9 | 0 20·4 | 11 0·5 | 9 5·1 | 0 29·1 |
| June 0 | 11 10·2 | 11 21·2 | 11 9·6 | 10 0·9 | 0 22·2 | 11 1·1 | 9 5·2 | 0 27·4 |
| July 0 | 0 2·0 | 0 12·4 | 11 13·4 | 10 0·4 | 0 23·6 | 11 1·3 | 9 5·1 | 0 25·8 |
| Aug. 0 | 0 23·1 | 1 2·5 | 11 14·7 | 9 28·6 | 0 24·5 | 11 1 0 | 9 4·3 | 0 24 2 |
| Sept. 0 | 1 11·7 | 1 19 3 | 11 12·9 | 9 26·3 | 0 24·7 | 11 0 3 | 9 3·7 | 0 22·5 |
| Oct. 0 | 1 25·4 | 1 29·6 | 11 9·3 | 9 24·6 | 0 24·1 | 10 29 5 | 9 3·0 | 0 21·0 |
| Nov. 0 | 2 1·2 | 1 29·4 | 11 5·7 | 9 24·3 | 0 23·0 | 10 28·8 | 9 2·8 | 0 19·3 |
| Dec. 0 | 1 24·7 | 1 19·1 | 11 4·9 | 9 25·4 | 0 21·8 | 10 28·5 | 9 3·0 | 0 17·7 |
| Dec. 31 | 1 14·8 | 1 13·9 | 11 7·0 | 9 28·0 | 0 20·9 | 10 28·7 | 9 3·4 | 0 16·1 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **2023** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Sat. | 8 15 6 | 11 19 17 | 6·20 | 7·837 | 47·2 | 64·9 |
| Feb. 0 | Tues. | 9 16 39 | 1 7 45 | 9·95 | 9 330 | 78·2 | 95·9 |
| Mar. 0 | Tues. | 10 14 57 | 1 16 42 | 10·43 | 7·775 | 106·2 | 123·9 |
| Apr. 0 | Fri. | 11 15 50 | 3 5 10 | 14·18 | 9·268 | 21·4 | 154·9 |
| May 0 | Sun. | 0 15 14 | 4 10 27 | 16·85 | 9·745 | 51·4 | 184·9 |
| June 0 | Wed. | 1 15 8 | 5 28 55 | 20·60 | 11·238 | 82·4 | 215 9 |
| July 0 | Fri. | 2 13 48 | 7 4 12 | 23·26 | 11·715 | 112·4 | 245·9 |
| Aug. 0 | Mon. | 3 13 23 | 8 22 40 | 27 01 | 13·207 | 27·5 | 276·9 |
| Sept. 0 | Thur. | 4 13 10 | 10 11 9 | 0·76 | 14·700 | 58·5 | 307·9 |
| Oct. 0 | Sat. | 5 12 24 | 11 16 26 | 3·43 | 15·177 | 88·5 | 337·9 |
| Nov. 0 | Tues. | 6 13 7 | 1 4 54 | 7·18 | 16·670 | 3·6 | 368·9 |
| Dec. 0 | Thur. | 7 13 19 | 2 10 11 | 9·84 | 17·147 | 33·6 | 398·9 |
| **2024** | | | | | | | |
| Jan. 0 | Sun. | 8 14 50 | 3 28 39 | 13·59 | 18·639 | 64·8 | 429·9 |
| Feb. 0 | Wed. | 9 16 24 | 5 17 7 | 17·34 | 20·132 | 95·6 | 460·9 |
| Mar. 0 | Thur. | 10 15 42 | 6 9 14 | 18·92 | 19·593 | 8·7 | 489·9 |
| Apr. 0 | Sun. | 11 16 35 | 7 27 42 | 22·67 | 21·086 | 39·7 | 520·9 |
| May 0 | Tues. | 0 15 57 | 9 3 0 | 25·33 | 21·563 | 69·7 | 550·9 |
| June 0 | Fri. | 1 15 51 | 10 21 28 | 29·08 | 23·056 | 100 7 | 581·9 |
| July 0 | Sun. | 2 14 31 | 11 26 45 | 1·74 | 23·532 | 14·8 | 28·0 |
| Aug. 0 | Wed. | 3 14 6 | 1 15 13 | 5·49 | 25·025 | 45·8 | 59·0 |
| Sept. 0 | Sat. | 4 13 53 | 3 3 41 | 9·25 | 26·518 | 76·8 | 90 0 |
| Oct. 0 | Mon. | 5 13 8 | 4 8 59 | 11·91 | 26·995 | 106·8 | 120·0 |
| Nov. 0 | Thur. | 6 13 51 | 5 27 27 | 15·66 | 28·488 | 22·0 | 151·0 |
| Dec. 0 | Sat. | 7 14 4 | 7 2 44 | 18·32 | 28·964 | 52·0 | 181·0 |
| **2025** | | | | | | | |
| Jan. 0 | Tues. | 8 15 35 | 8 21 12 | 22·07 | 0·457 | 83 0 | 212·0 |
| Feb. 0 | Fri. | 9 17 9 | 10 9 40 | 25·82 | 1·950 | 114·0 | 243·0 |
| Mar. 0 | Fri. | 10 15 26 | 10 18 37 | 26·31 | 0·395 | 26·1 | 271·0 |
| Apr. 0 | Mon. | 11 16 19 | 0 7 5 | 0·06 | 1·888 | 57·1 | 302·0 |
| May 0 | Wed. | 0 15 42 | 1 12 22 | 2·72 | 2·365 | 87·1 | 332·0 |
| June 0 | Sat. | 1 15 36 | 3 0 50 | 6·47 | 3·857 | 2·2 | 363·0 |
| July 0 | Mon. | 2 14 16 | 4 6 8 | 9·14 | 4·334 | 32·2 | 393·0 |
| Aug. 0 | Thur. | 3 13 51 | 5 24 36 | 12·89 | 5·827 | 63·2 | 424·0 |
| Sept. 0 | Sun. | 4 13 39 | 7 13 4 | 16·64 | 7·320 | 94·2 | 455·0 |
| Oct. 0 | Tues. | 5 12 53 | 8 18 21 | 19·30 | 7·797 | 8·3 | 485·0 |
| Nov. 0 | Fri. | 6 13 36 | 10 6 49 | 23·05 | 9·290 | 39·3 | 516·0 |
| Dec. 0 | Sun. | 7 13 48 | 11 12 7 | 25·71 | 9·766 | 69·3 | 546·0 |
| **2026** | | | | | | | |
| Jan. 0 | Wed. | 8 15 20 | 1 0 35 | 29·47 | 11·259 | 100·3 | 577·0 |
| Feb. 0 | Sat. | 9 16 53 | 2 19 3 | 3·22 | 12·752 | 15·5 | 24·0 |
| Mar. 0 | Sat. | 10 15 11 | 2 27 59 | 3·70 | 11·197 | 43·5 | 52·0 |
| Apr. 0 | Tues. | 11 16 4 | 4 16 27 | 7·45 | 12·690 | 74·5 | 83·0 |
| May 0 | Thur | 0 15 27 | 5 21 44 | 10·12 | 13·167 | 104·5 | 113·0 |
| June 0 | Sun. | 1 15 21 | 7 10 12 | 13·87 | 14·659 | 19·6 | 144·0 |
| July 0 | Tues. | 2 14 1 | 8 15 30 | 16·53 | 15·136 | 49·6 | 174·0 |
| Aug. 0 | Fri. | 3 13 36 | 10 3 58 | 20·28 | 16·629 | 80·6 | 205·0 |
| Sept. 0 | Mon. | 4 13 24 | 11 22 26 | 24·03 | 18·122 | 111·6 | 236·0 |
| Oct. 0 | Wed. | 5 12 37 | 0 27 43 | 26·69 | 18·599 | 25·7 | 266·0 |
| Nov. 0 | Sat. | 6 13 21 | 2 16 11 | 0 45 | 20·091 | 56·7 | 297·3 |
| Dec. 0 | Mon. | 7 13 33 | 3 21 29 | 3·11 | 20·568 | 86·7 | 327·0 |
| Dec. 31 | Thur. | 8 15 4 | 5 9 57 | 6·86 | 22·061 | 1·8 | 358·0 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2023** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 1 14·8 | 1 13·9 | 11 7·0 | 9 28·0 | 0 20·9 | 10 28·7 | 9 3·4 | 0 16·1 |
| Feb. 0 | 1 15·9 | 1 19·9 | 11 11·9 | 10 1·3 | 0 20·8 | 10 29·4 | 9 4·4 | 0 14·5 |
| Mar. 0 | 1 24·7 | 2 1·1 | 11 17·6 | 10 4·8 | 0 21·3 | 11 0·4 | 9 5·2 | 0 13·0 |
| Apr. 0 | 2 8·7 | 2 16·4 | 11 24·9 | 10 8·3 | 0 22·6 | 11 1·7 | 9 6·0 | 0 11·3 |
| May 0 | 2 24·5 | 3 2·9 | 0 2·2 | 10 11·0 | 0 24·3 | 11 2·7 | 9 6·8 | 0 9·7 |
| June 0 | 3 12·1 | 3 20·8 | 0 9·2 | 10 12·5 | 0 26·0 | 11 3·4 | 9 6·9 | 0 8·1 |
| July 0 | 3 29·8 | 4 8·9 | 0 15·1 | 10 12·7 | 0 27·5 | 11 3·6 | 9 6·7 | 0 6·5 |
| Aug. 0 | 4 18·7 | 4 28·1 | 0 19·6 | 10 11·3 | 0 28·6 | 11 3·3 | 9 5·9 | 0 4·9 |
| Sept. 0 | 5 8·3 | 5 18·7 | 0 21·5 | 10 9·1 | 0 23·9 | 11 2·6 | 9 5·2 | 0 3·2 |
| Oct. 0 | 5 27·9 | 6 7·9 | 0 20·5 | 10 7·1 | 0 28·4 | 11 1·8 | 9 4·7 | 0 1·6 |
| Nov. 0 | 6 18·8 | 6 29·3 | 0 16·9 | 10 6·1 | 0 27·3 | 11 1·1 | 9 4·6 | 0 0·0 |
| Dec. 0 | 7 9·9 | 7 20·7 | 0 13·1 | 10 6·7 | 0 26·1 | 11 0·8 | 9 4·7 | 11 28·4 |
| **2024** | | | | | | | | |
| Jan. 0 | 8 2·4 | 8 13·6 | 0 11·6 | 10 8·8 | 0 25·1 | 11 1·0 | 9 5·1 | 11 26·7 |
| Feb. 0 | 8 25·6 | 9 7·1 | 0 13·2 | 10 12·0 | 0 24·9 | 11 1·6 | 9 6·0 | 11 25·1 |
| Mar. 0 | 9 17·9 | 9 29·5 | 0 17·2 | 10 15·2 | 0 25·4 | 11 2·6 | 9 6·8 | 11 23·6 |
| Apr. 0 | 10 11·9 | 10 23·6 | 0 23·2 | 10 19·2 | 0 26·6 | 11 3·8 | 9 7·6 | 11 22·0 |
| May 0 | 11 5·2 | 11 16·7 | 0 29·9 | 10 22·1 | 0 28·2 | 11 4·8 | 9 8·4 | 11 20·4 |
| June 0 | 11 28·8 | 0 10·0 | 1 7·2 | 10 24·0 | 1 0·0 | 11 5·5 | 9 8·5 | 11 18·7 |
| July 0 | 0 21·0 | 1 1·7 | 1 14·0 | 10 24·7 | 1 1·5 | 11 5·7 | 9 8·3 | 11 17·2 |
| Aug. 0 | 1 12·8 | 1 22·8 | 1 20·2 | 10 23·9 | 1 2·6 | 11 5·5 | 9 7·5 | 11 15·5 |
| Sept. 0 | 2 2·9 | 2 11·9 | 1 24·9 | 10 22·0 | 1 3·0 | 11 4·9 | 9 6·8 | 11 13·9 |
| Oct. 0 | 2 20·3 | 2 27·7 | 1 27·2 | 10 19·5 | 1 2·6 | 11 4·0 | 9 6·3 | 11 12·3 |
| Nov 0 | 3 4·5 | 3 9·2 | 1 26·5 | 10 18·1 | 1 1·6 | 11 3·3 | 9 6·2 | 11 10·7 |
| Dec. 0 | 3 11·8 | 3 11·7 | 1 23·3 | 10 18·0 | 1 0·4 | 11 3·0 | 9 6·3 | 11 9·1 |
| **2025** | | | | | | | | |
| Jan. 0 | 3 8·2 | 3 2·6 | 1 19·3 | 10 19·1 | 0 29·4 | 11 3·1 | 9 6·8 | 11 7·4 |
| Feb. 0 | 2 26·7 | 2 23·5 | 1 17·3 | 10 22·6 | 0 29·0 | 11 3·7 | 9 7·6 | 11 5·8 |
| Mar. 0 | 2 23·1 | 2 25·1 | 1 18·1 | 10 25·9 | 0 29·4 | 11 4·7 | 9 8·3 | 11 4·3 |
| Apr. 0 | 2 29·4 | 3 4·8 | 1 21·8 | 10 29·9 | 1 0·5 | 11 6·0 | 9 9·2 | 11 2·6 |
| May 0 | 3 11·2 | 3 18·4 | 1 27·1 | 11 3·2 | 1 2·1 | 11 7·0 | 9 9·8 | 11 1·0 |
| June 0 | 3 26·6 | 4 7·6 | 2 3·8 | 11 5·6 | 1 3·9 | 11 7·8 | 9 10·0 | 10 29·4 |
| July 0 | 4 13·3 | 4 22·1 | 2 10·5 | 11 7·0 | 1 5·5 | 11 8·0 | 9 9·8 | 10 27·8 |
| Aug. 0 | 5 1·7 | 5 11·1 | 2 17·5 | 11 6·8 | 1 6·7 | 11 7·8 | 9 9·0 | 10 26·2 |
| Sept. 0 | 5 21·3 | 6 1·1 | 2 23·6 | 11 5·0 | 1 7·2 | 11 7·1 | 9 8·4 | 10 24·5 |
| Oct. 0 | 6 11·1 | 6 21·4 | 2 28·3 | 11 2·8 | 1 6·9 | 11 6·3 | 9 7·9 | 10 22·9 |
| Nov. 0 | 7 2·6 | 7 13·4 | 3 0·9 | 11 1·0 | 1 6·0 | 11 5·6 | 9 7·8 | 10 21·3 |
| Dec. 0 | 7 24·4 | 8 5·6 | 3 0·5 | 11 0·3 | 1 4·8 | 11 5·2 | 9 7·9 | 10 19·7 |
| **2026** | | | | | | | | |
| Jan. 0 | 8 17·7 | 8 29·2 | 2 27·4 | 11 1·4 | 1 3·7 | 11 5·4 | 9 8·5 | 10 18·1 |
| Feb. 0 | 9 11·6 | 9 23·4 | 2 23·4 | 11 4·0 | 1 3·2 | 11 6·0 | 9 9·0 | 10 16·4 |
| Mar. 0 | 10 3·6 | 10 15·5 | 2 21·2 | 11 7·4 | 1 3·5 | 11 6·9 | 9 9·7 | 10 14·9 |
| Apr. 0 | 10 28·0 | 11 9·7 | 2 21·6 | 11 10·9 | 1 4·5 | 11 8·1 | 9 10·6 | 10 13·2 |
| May 0 | 11 21·3 | 0 2·8 | 2 24·7 | 11 14·4 | 1 6·0 | 11 9·1 | 9 11·2 | 10 11·6 |
| June 0 | 0 14·8 | 0 25·8 | 2 29·8 | 11 17·6 | 1 7·8 | 11 9·9 | 9 11·3 | 10 10·0 |
| July 0 | 1 6·7 | 1 17·3 | 3 5·8 | 11 19·3 | 1 9·5 | 11 10·2 | 9 11·1 | 10 8·4 |
| Aug. 0 | 1 28·3 | 2 8·3 | 3 12·6 | 11 19·7 | 1 10·8 | 11 10·0 | 9 10·3 | 10 6·8 |
| Sept. 0 | 2 18·7 | 2 28·1 | 3 19·4 | 11 18·5 | 1 11·4 | 11 9·4 | 9 9·7 | 10 5·1 |
| Oct. 0 | 3 7·1 | 3 15·6 | 3 25·2 | 11 16·6 | 1 11·3 | 11 8·6 | 9 9·2 | 10 3·5 |
| Nov. 0 | 3 24·1 | 4 1·4 | 4 0·1 | 11 14·2 | 1 10·4 | 11 7·8 | 9 9·1 | 10 1·9 |
| Dec. 0 | 4 7·6 | 4 12·5 | 4 2·5 | 11 13·0 | 1 9·2 | 11 7·4 | 9 9·2 | 10 0·3 |
| Dec. 31 | 4 15·8 | 4 16·4 | 4 2·4 | 11 13·4 | 1 8·0 | 11 7·5 | 9 10·1 | 9 28·7 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **2027** | | s ° ' | s ° ' | | | d | d |
| Jan. 0 | Thur. | 8 15 4 | 5 9 57 | 6·86 | 22·061 | 1·8 | 358·0 |
| Feb. 0 | Sun. | 9 16 38 | 6 28 25 | 10·61 | 23·554 | 32·8 | 389·0 |
| Mar. 0 | Sun. | 10 14 55 | 7 7 21 | 11·10 | 21·909 | 60·8 | 417·0 |
| Apr. 0 | Wed. | 11 15 49 | 8 25 49 | 14·85 | 23·492 | 91·8 | 448·0 |
| May 0 | Fri. | 0 15 12 | 10 1 7 | 17·51 | 23 969 | 6·0 | 478·0 |
| June 0 | Mon. | 1 15 7 | 11 19 35 | 21·26 | 25·461 | 37·0 | 509 0 |
| July 0 | Wed. | 2 13 47 | 0 24 52 | 23·92 | 25·938 | 67·0 | 539·0 |
| Aug. 0 | Sat. | 3 13 22 | 2 13 20 | 27·67 | 27·431 | 98·0 | 570·0 |
| Sept. 0 | Tues. | 4 13 9 | 4 1 48 | 1·43 | 28·924 | 13·1 | 17·1 |
| Oct. 0 | Thur. | 5 12 22 | 5 7 6 | 4·09 | 29·401 | 43·1 | 47·1 |
| Nov. 0 | Sun. | 6 13 5 | 6 25 34 | 7·84 | 0·893 | 74·1 | 78·1 |
| Dec. 0 | Tues. | 7 13 17 | 8 0 51 | 10·50 | 1·370 | 104·1 | 108·1 |
| **2028** | | | | | | | |
| Jan. 0 | Fri. | 8 14 48 | 9 19 19 | 14·25 | 2·863 | 19·2 | 139·1 |
| Feb. 0 | Mon. | 9 16 23 | 11 7 47 | 18·00 | 4·356 | 50·2 | 170·1 |
| Mar. 0 | Tues. | 10 15 40 | 11 29 54 | 19·58 | 3 817 | 79·2 | 199·1 |
| Apr. 0 | Fri. | 11 16 33 | 1 18 22 | 23·33 | 5·310 | 110·2 | 230·1 |
| May 0 | Sun. | 0 15 56 | 2 23 39 | 25·99 | 5·786 | 24·3 | 260·1 |
| June 0 | Wed. | 1 15 49 | 4 12 7 | 29·74 | 7·279 | 55·3 | 291·1 |
| July 0 | Fri. | 2 14 29 | 5 17 25 | 2·41 | 7·756 | 85·3 | 321·1 |
| Aug. 0 | Mon. | 3 14 4 | 7 5 52 | 6 16 | 9·249 | 0·4 | 352·1 |
| Sept. 0 | Thur. | 4 13 52 | 8 24 21 | 9·91 | 10·742 | 31·4 | 383·1 |
| Oct. 0 | Sat. | 5 13 6 | 9 29 38 | 12·57 | 11·219 | 61·4 | 413·1 |
| Nov. 0 | Tues. | 6 13 50 | 11 18 6 | 16·32 | 12·711 | 92·4 | 444·1 |
| Dec. 0 | Thur. | 7 14 2 | 0 23 24 | 18·98 | 13·188 | 6·6 | 474·1 |
| **2029** | | | | | | | |
| Jan. 0 | Sun. | 8 15 34 | 2 11 52 | 22·74 | 14·681 | 37·6 | 505·1 |
| Feb. 0 | Wed. | 9 17 7 | 4 0 20 | 26·49 | 16·174 | 68·6 | 536·1 |
| Mar. 0 | Wed. | 10 15 25 | 4 9 16 | 26·97 | 14·619 | 96·6 | 564·1 |
| Apr. 0 | Sat. | 11 16 18 | 5 27 44 | 0·72 | 16·112 | 11·7 | 11·2 |
| May 0 | Mon. | 0 15 41 | 7 3 2 | 3·39 | 16·588 | 41·7 | 41·2 |
| June 0 | Thur. | 1 15 35 | 8 21 30 | 7 14 | 18·081 | 72·7 | 72·2 |
| July 0 | Sat. | 2 14 15 | 9 26 47 | 9·81 | 18·558 | 102·7 | 102·2 |
| Aug. 0 | Tues. | 3 13 49 | 11 15 15 | 13·55 | 20 051 | 17·8 | 133·2 |
| Sept. 0 | Fri. | 4 13 37 | 1 3 43 | 17 30 | 21·544 | 48 8 | 164·2 |
| Oct. 0 | Sun. | 5 12 51 | 2 9 1 | 19·96 | 22·0[illegible]0 | 78 8 | 194·2 |
| Nov. 0 | Wed. | 6 13 34 | 3 27 29 | 23·72 | 23·513 | 109 8 | 225·2 |
| Dec. 0 | Fri. | 7 13 47 | 5 2 46 | 26·38 | 23·990 | 23·9 | 255·2 |
| **2030** | | | | | | | |
| Jan. 0 | Mon. | 8 15 18 | 6 21 14 | 0·13 | 25·483 | 54·9 | 286·2 |
| Feb. 0 | Thur. | 9 16 52 | 8 9 42 | 3·88 | 26·976 | 85·9 | 317·2 |
| Mar. 0 | Thur. | 10 15 9 | 8 18 38 | 4·37 | 25·421 | 113·9 | 345·2 |
| Apr. 0 | Sun. | 11 16 3 | 10 7 6 | 8 12 | 26·914 | 29·1 | 376·2 |
| May 0 | Tues. | 0 15 26 | 11 12 24 | 10·78 | 27·390 | 59·1 | 406·2 |
| June 0 | Fri. | 1 15 20 | 1 0 52 | 14·53 | 28·883 | 90·1 | 437·2 |
| July 0 | Sun. | 2 14 0 | 2 6 9 | 17·19 | 29·360 | 4·2 | 467·2 |
| Aug. 0 | Wed. | 3 13 35 | 3 24 37 | 20 94 | 0·853 | 35·2 | 498 2 |
| Sept. 0 | Sat. | 4 13 22 | 5 13 5 | 24·69 | 2·346 | 66·2 | 529·2 |
| Oct. 0 | Mon. | 5 12 36 | 6 18 23 | 27·36 | 2·822 | 96·2 | 559·2 |
| Nov. 0 | Thur. | 6 13 19 | 8 6 51 | 1·11 | 4·315 | 11 3 | 6 3 |
| Dec. 0 | Sat. | 7 13 31 | 9 12 8 | 3·77 | 4·792 | 41·3 | 36·3 |
| Dec. 31 | Tues. | 8 15 2 | 11 0 36 | 7·52 | 6·285 | 72·3 | 67·3 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2027** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 4 15·8 | 4 16·4 | 4 2·4 | 11 13·4 | 1 8·0 | 11 7·5 | 9 10·1 | 9 28·7 |
| Feb. 0 | 4 13·8 | 4 8·6 | 3 29·3 | 11 15·5 | 1 7·4 | 11 8·1 | 9 10·5 | 9 27·0 |
| Mar. 0 | 4 3·6 | 3 28·9 | 3 25·6 | 11 18·5 | 1 7·6 | 11 9·0 | 9 11·4 | 9 25·5 |
| Apr. 0 | 3 27·0 | 3 28·0 | 3 23·1 | 11 22·2 | 1 8·6 | 11 10·2 | 9 12·1 | 9 23·9 |
| May 0 | 4 1·3 | 4 6·2 | 3 23·3 | 11 25·9 | 1 10·0 | 11 11·3 | 9 12·6 | 9 22·3 |
| June 0 | 4 12·8 | 4 19·8 | 3 26·1 | 11 29·3 | 1 11·8 | 11 12·1 | 9 12·6 | 9 20·7 |
| July 0 | 4 27·6 | 5 5·9 | 4 0·8 | 0 1·7 | 1 13·5 | 11 12·3 | 9 12·0 | 9 19·1 |
| Aug. 0 | 5 15·2 | 5 24·4 | 4 6·8 | 0 2·8 | 1 14·9 | 11 12·2 | 9 11·3 | 9 17·4 |
| Sept. 0 | 6 4·6 | 6 14·5 | 4 13·5 | 0 2·3 | 1 15·6 | 11 11·5 | 9 10·7 | 9 15·8 |
| Oct. 0 | 6 24·7 | 7 5·1 | 4 19·9 | 0 0·5 | 1 15·6 | 11 10·7 | 9 10·3 | 9 14·2 |
| Nov. 0 | 7 16·6 | 7 27·7 | 4 25·9 | 11 27·9 | 1 14·8 | 11 10·0 | 9 10·3 | 9 12·6 |
| Dec. 0 | 8 8·9 | 8 20·4 | 5 0·5 | 11 26·4 | 1 13·6 | 11 9·5 | 9 10·6 | 9 11·0 |
| **2028** | | | | | | | | |
| Jan. 0 | 9 2·8 | 9 14·6 | 5 3·0 | 11 26·1 | 1 12·4 | 11 9·6 | 9 11·1 | 9 9·3 |
| Feb. 0 | 9 27·2 | 10 9·1 | 5 2·8 | 11 27·5 | 1 11·7 | 11 10·3 | 9 12·1 | 9 7·7 |
| Mar. 0 | 10 20·1 | 11 1·9 | 5 0·0 | 0 0·0 | 1 11·8 | 11 11·1 | 9 13·0 | 9 6·2 |
| Apr. 0 | 11 14·4 | 11 25·9 | 4 26·1 | 0 3·7 | 1 12·6 | 11 12·3 | 9 13·7 | 9 4·6 |
| May 0 | 0 7·3 | 0 18·5 | 4 23·6 | 0 7·6 | 1 14·1 | 11 13·3 | 9 14·2 | 9 3·0 |
| June 0 | 1 0·2 | 1 11·0 | 4 23·7 | 0 11·0 | 1 15·8 | 11 14·3 | 9 14·2 | 9 1·3 |
| July 0 | 1 21·5 | 2 1·9 | 4 26·4 | 0 14·0 | 1 17·5 | 11 14·6 | 9 13·0 | 8 29·7 |
| Aug. 0 | 2 12·7 | 2 22·7 | 5 1·2 | 0 15·8 | 1 19·0 | 11 14·4 | 9 12·9 | 8 28·1 |
| Sept. 0 | 3 3·0 | 3 12·5 | 5 7·2 | 0 16·1 | 1 19·8 | 11 13·8 | 9 12·3 | 8 26·5 |
| Oct. 0 | 3 21·7 | 4 0·7 | 5 13·6 | 0 14·8 | 1 19·9 | 11 13·1 | 9 11·9 | 8 24·9 |
| Nov. 0 | 4 10·0 | 4 18·2 | 5 20·2 | 0 12·4 | 1 19·2 | 11 12·2 | 9 11·9 | 8 23·2 |
| Dec. 0 | 4 26·0 | 5 3·2 | 5 25·9 | 0 10·3 | 1 18·0 | 11 11·8 | 9 12·2 | 8 21·6 |
| **2029** | | | | | | | | |
| Jan. 0 | 5 9·9 | 5 15·0 | 6 0·4 | 0 9·3 | 1 16·8 | 11 11·8 | 9 13·0 | 8 20·0 |
| Feb. 0 | 5 18·7 | 5 19·9 | 6 3·0 | 0 10·0 | 1 16·0 | 11 12·3 | 9 13·7 | 8 18·2 |
| Mar. 0 | 5 18·7 | 5 14·7 | 6 2·7 | 0 12·0 | 1 16·0 | 11 13·3 | 9 14·6 | 8 16·8 |
| Apr. 0 | 5 8·6 | 5 3·6 | 5 29·9 | 0 15·5 | 1 16·7 | 11 14·5 | 9 15·3 | 8 15·2 |
| May 0 | 5 1·1 | 5 1·4 | 5 26·1 | 0 19·2 | 1 18·1 | 11 15·6 | 9 15·8 | 8 13·6 |
| June 0 | 5 4·4 | 5 9·3 | 5 23·6 | 0 23·0 | 1 19·8 | 11 16·6 | 9 15·8 | 8 11·9 |
| July 0 | 5 15·5 | 5 22·7 | 5 23·5 | 0 26·4 | 1 21·6 | 11 16·5 | 9 15·2 | 8 10·3 |
| Aug. 0 | 6 1·4 | 6 10·2 | 5 26·4 | 0 28·8 | 1 23·1 | 11 16·4 | 9 14·5 | 8 8·7 |
| Sept. 0 | 6 20·2 | 7 0·1 | 6 1·1 | 0 29·8 | 1 24·0 | 11 16·3 | 9 13·9 | 8 7·1 |
| Oct. 0 | 7 10·4 | 7 21·0 | 6 6·9 | 0 29·2 | 1 24·2 | 11 15·5 | 9 13·5 | 8 5·5 |
| Nov. 0 | 8 2·7 | 8 13·9 | 6 13·6 | 0 27·2 | 1 23·6 | 11 14·7 | 9 13·5 | 8 3·8 |
| Dec. 0 | 8 25·4 | 9 7·0 | 6 20·1 | 0 24·8 | 1 22·5 | 11 14·1 | 9 13·8 | 8 2·2 |
| **2030** | | | | | | | | |
| Jan. 0 | 9 19·5 | 10 1·3 | 6 26·1 | 0 23·1 | 1 21·2 | 11 14·1 | 9 14·5 | 8 0·6 |
| Feb. 0 | 10 13·9 | 10 25·7 | 7 0·7 | 0 23·1 | 1 20·4 | 11 14·6 | 9 15·2 | 7 28·9 |
| Mar. 0 | 11 5·8 | 11 17·4 | 7 3·0 | 0 24·4 | 1 20·2 | 11 15·4 | 9 16·1 | 7 27·5 |
| Apr. 0 | 11 29·5 | 0 10·8 | 7 2·9 | 0 27·7 | 1 20·9 | 11 16·6 | 9 16·8 | 7 25·8 |
| May 0 | 0 21·8 | 1 2·7 | 7 0·1 | 1 1·0 | 1 22·2 | 11 17·7 | 3 17·3 | 7 24·2 |
| June 0 | 1 14·0 | 1 24·5 | 6 26·3 | 1 5·0 | 1 23·9 | 11 18·7 | 9 17·3 | 7 22·6 |
| July 0 | 2 4·8 | 2 14·9 | 6 23·9 | 1 9·1 | 1 25·6 | 11 19·0 | 9 16·7 | 7 21·0 |
| Aug. 0 | 2 25·5 | 3 5·3 | 6 23·8 | 1 11·6 | 1 27·2 | 11 19·0 | 9 16·0 | 7 19·4 |
| Sept. 0 | 3 15·6 | 3 25·1 | 6 26·5 | 1 13·4 | 1 28·3 | 11 18·5 | 9 15·4 | 7 17·7 |
| Oct. 0 | 4 4·5 | 4 13·7 | 7 1·2 | 1 13·5 | 1 28·6 | 11 17·6 | 9 15·0 | 7 16·1 |
| Nov. 0 | 4 23·4 | 5 2·3 | 7 7·4 | 1 12·1 | 1 28·1 | 11 16·8 | 9 15·0 | 7 14·5 |
| Dec. 0 | 5 11·0 | 5 19·4 | 7 14·0 | 1 9·7 | 1 27·0 | 11 16·3 | 9 15·3 | 7 12·9 |
| Dec. 31 | 5 27·9 | 6 5·5 | 7 20·9 | 1 7·6 | 1 25·7 | 11 16·2 | 9 16·3 | 7 11·2 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **2031** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Tues. | 8 15 2 | 11 0 36 | 7·52 | 6·285 | 72·3 | 67·3 |
| Feb. 0 | Fri. | 9 16 36 | 0 19 4 | 11·27 | 7·778 | 103·3 | 98·3 |
| Mar. 0 | Fri. | 10 14 54 | 0 28 1 | 11·76 | 6·223 | 15·4 | 126·3 |
| Apr. 0 | Mon. | 11 15 47 | 2 16 29 | 15·51 | 7·715 | 46·4 | 157·3 |
| May 0 | Wed. | 0 15 11 | 3 21 46 | 18·17 | 8·192 | 76·4 | 187·3 |
| June 0 | Sat. | 1 15 5 | 5 10 14 | 21·92 | 9·685 | 107·4 | 218·3 |
| July 0 | Mon. | 2 13 45 | 6 15 32 | 24·59 | 10·162 | 21·5 | 248·3 |
| Aug. 0 | Thur. | 3 13 20 | 8 4 0 | 28·34 | 11·655 | 52·5 | 279·3 |
| Sept. 0 | Sun. | 4 13 7 | 9 22 28 | 2·09 | 13·148 | 83·5 | 310·3 |
| Oct. 0 | Tues. | 5 12 21 | 10 27 45 | 4·75 | 13·624 | 113·5 | 340·3 |
| Nov. 0 | Fri. | 6 13 4 | 0 16 13 | 8·50 | 15·117 | 28·7 | 371·3 |
| Dec. 0 | Sun. | 7 13 16 | 1 21 31 | 11·16 | 15·594 | 58·7 | 401·3 |
| **2032** | | | | | | | |
| Jan. 0 | Wed. | 8 14 47 | 3 9 59 | 14·92 | 17·087 | 89·7 | 432·3 |
| Feb. 0 | Sat. | 9 16 21 | 4 28 27 | 18·67 | 18·580 | 4·8 | 463·3 |
| Mar. 0 | Sun. | 10 15 39 | 5 20 33 | 20·24 | 18·041 | 33·8 | 492·3 |
| Apr. 0 | Wed. | 11 16 31 | 7 9 2 | 23·99 | 19·533 | 64·8 | 523·3 |
| May 0 | Fri. | 0 15 54 | 8 14 19 | 26·65 | 20·010 | 94·8 | 553·3 |
| June 0 | Mon. | 1 15 48 | 10 2 47 | 0·41 | 21·503 | 9·9 | 0·4 |
| July 0 | Wed. | 2 14 28 | 11 8 4 | 3·07 | 21·980 | 39·9 | 30·4 |
| Aug. 0 | Sat. | 3 14 3 | 0 26 32 | 6·82 | 23·473 | 70·9 | 61·4 |
| Sept. 0 | Tues. | 4 13 50 | 2 15 0 | 10·57 | 24·965 | 101·9 | 92·4 |
| Oct. 0 | Thur. | 5 13 5 | 3 20 18 | 13·23 | 25·442 | 16·0 | 122·4 |
| Nov. 0 | Sun. | 6 13 48 | 5 8 46 | 16·98 | 26·935 | 47·0 | 153·4 |
| Dec. 0 | Tues. | 7 14 1 | 6 14 3 | 19·65 | 27·412 | 77·0 | 183·4 |
| **2033** | | | | | | | |
| Jan. 0 | Fri. | 8 15 32 | 8 2 31 | 23·40 | 28·905 | 108.0 | 214·4 |
| Feb. 0 | Mon. | 9 17 6 | 9 20 59 | 27·15 | 0·397 | 23.2 | 245·4 |
| Mar. 0 | Mon. | 10 15 23 | 9 29 56 | 27·63 | 28·843 | 51.2 | 273·4 |
| Apr. 0 | Thur. | 11 16 16 | 11 18 24 | 1·39 | 0·335 | 82.2 | 304·4 |
| May 0 | Sat. | 0 15 39 | 0 23 41 | 4·05 | 0·812 | 112.2 | 334·4 |
| June 0 | Tues. | 1 15 33 | 2 12 9 | 7·80 | 2·305 | 27.3 | 365·4 |
| July 0 | Thur. | 2 14 13 | 3 17 27 | 10·46 | 2·782 | 57·3 | 395·4 |
| Aug. 0 | Sun. | 3 13 48 | 5 5 55 | 14·21 | 4·275 | 88·3 | 426·4 |
| Sept. 0 | Wed. | 4 13 36 | 6 24 23 | 17·96 | 5·767 | 3·4 | 457·4 |
| Oct. 0 | Fri. | 5 12 50 | 7 29 40 | 20·63 | 6·244 | 33·4 | 487·4 |
| Nov. 0 | Mon. | 6 13 33 | 9 18 8 | 24·38 | 7·737 | 64·4 | 518·4 |
| Dec. 0 | Wed. | 7 13 45 | 10 23 26 | 27·04 | 8·214 | 94·4 | 548·4 |
| **2034** | | | | | | | |
| Jan. 0 | Sat. | 8 15 17 | 0 11 54 | 0·79 | 9·707 | 9·5 | 579·4 |
| Feb. 0 | Tues. | 9 16 50 | 2 0 22 | 4·54 | 11·199 | 40·5 | 26·4 |
| Mar. 0 | Tues. | 10 15 8 | 2 9 18 | 5·03 | 9·644 | 68·5 | 54·4 |
| Apr. 0 | Fri. | 11 16 1 | 3 27 46 | 8·78 | 11·137 | 99·5 | 85·4 |
| May 0 | Sun. | 0 15 24 | 5 3 3 | 11·44 | 11·614 | 13·6 | 115·4 |
| June 0 | Wed. | 1 15 19 | 6 21 32 | 15·19 | 13·107 | 44·6 | 146·4 |
| July 0 | Fri. | 2 13 59 | 7 26 49 | 17·85 | 13·584 | 74·6 | 176·4 |
| Aug. 0 | Mon. | 3 13 33 | 9 15 17 | 21·61 | 15·077 | 105·6 | 207·4 |
| Sept. 0 | Thur. | 4 13 21 | 11 3 45 | 25·36 | 16·569 | 20·8 | 238·4 |
| Oct. 0 | Sat. | 5 12 34 | 0 9 2 | 28·02 | 17·046 | 50·8 | 268·4 |
| Nov. 0 | Tues. | 6 13 17 | 1 27 30 | 1·77 | 18·539 | 81·8 | 299·4 |
| Dec. 0 | Thur. | 7 13 30 | 3 2 48 | 4·43 | 19·016 | 111·8 | 329·4 |
| Dec. 31 | Sun. | 8 15 1 | 4 21 16 | 8·19 | 20·509 | 26·9 | 360·4 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2031** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 5 27·9 | 6 5·5 | 7 20·9 | 1 7·6 | 1 25·7 | 11 16·2 | 9 16·3 | 7 11·2 |
| Feb. 0 | 6 12·8 | 6 18·8 | 7 27·1 | 1 6·7 | 1 24·8 | 11 16·7 | 9 17·4 | 7 9·6 |
| Mar. 0 | 6 23·0 | 6 26·2 | 8 1·5 | 1 7·5 | 1 24·5 | 11 17·5 | 9 18·3 | 7 8·1 |
| Apr. 0 | 6 27·3 | 6 25·4 | 8 4·4 | 1 9·9 | 1 25·1 | 11 18·7 | 9 19·0 | 7 6·5 |
| May 0 | 6 20·9 | 6 15·5 | 8 4·4 | 1 13·3 | 1 26·3 | 11 19·8 | 9 19·5 | 7 4·9 |
| June 0 | 6 11·1 | 6 10·0 | 8 1·4 | 1 17·2 | 1 28·0 | 11 20·8 | 9 19·5 | 7 3·2 |
| July 0 | 6 11·8 | 6 15·9 | 7 28·0 | 1 21·0 | 1 29·7 | 11 21·2 | 9 18·9 | 7 1·7 |
| Aug. 0 | 6 22·4 | 6 23·9 | 7 25·3 | 1 24·5 | 2 1·4 | 11 21·1 | 9 18·2 | 7 0·0 |
| Sept. 0 | 7 8·9 | 7 18·3 | 7 25·2 | 1 26·8 | 2 2·4 | 11 20·7 | 9 17·6 | 6 28·4 |
| Oct. 0 | 7 28·2 | 8 8·7 | 7 27·8 | 1 27·7 | 2 3·0 | 11 19·9 | 9 17·2 | 6 26·8 |
| Nov. 0 | 8 20·2 | 9 1·4 | 8 2·7 | 1 26·9 | 2 2·6 | 11 19·1 | 9 17·2 | 6 25·1 |
| Dec. 0 | 9 12·8 | 9 24·2 | 8 8·8 | 1 24·8 | 2 1·6 | 11 18·5 | 9 17·5 | 6 23·6 |
| **2032** | | | | | | | | |
| Jan. 0 | 10 6·6 | 10 18·1 | 8 15·9 | 1 22·4 | 2 0·3 | 11 18·5 | 9 18·2 | 6 21·9 |
| Feb. 0 | 11 0·4 | 11 11·8 | 8 23·0 | 1 20·9 | 1 29·2 | 11 18·9 | 9 18·9 | 6 20·3 |
| Mar. 0 | 11 22·3 | 0 3·5 | 8 29·1 | 1 21·0 | 1 28·9 | 11 19·7 | 9 19·8 | 6 18·8 |
| Apr. 0 | 0 15·2 | 0 25·9 | 9 4·0 | 1 22·6 | 1 29·3 | 11 20·8 | 9 20·5 | 6 17·1 |
| May 0 | 1 6·5 | 1 17·0 | 9 7·3 | 1 25·6 | 2 0·5 | 11 21·9 | 9 21·0 | 6 15·5 |
| June 0 | 1 27·9 | 2 8·0 | 9 7·7 | 1 29·5 | 2 2·1 | 11 22·9 | 9 21·0 | 6 13·9 |
| July 0 | 2 18·0 | 2 27·9 | 9 5·5 | 2 3·2 | 2 3·9 | 11 23·3 | 9 20·4 | 6 12·3 |
| Aug. 0 | 3 8·3 | 3 17·9 | 9 1·5 | 2 7·0 | 2 5·6 | 11 23·4 | 9 19·7 | 6 10·7 |
| Sept. 0 | 3 28·2 | 4 7·7 | 8 28·7 | 2 10·0 | 2 6·8 | 11 22·9 | 9 19·1 | 6 9·0 |
| Oct. 0 | 4 17·2 | 4 26·6 | 8 23·3 | 2 11·6 | 2 7·3 | 11 22·1 | 9 18·7 | 6 7·4 |
| Nov. 0 | 5 6·6 | 5 15·9 | 9 1·0 | 2 11·6 | 2 7·1 | 11 21·2 | 9 18·7 | 6 5·8 |
| Dec. 0 | 5 25·1 | 6 4·3 | 9 5·7 | 2 10·1 | 2 6·1 | 11 20·7 | 9 19·0 | 6 4·2 |
| **2033** | | | | | | | | |
| Jan. 0 | 6 13·9 | 6 22·8 | 9 12·2 | 2 7·7 | 2 4·8 | 11 20·6 | 9 19·7 | 6 2·6 |
| Feb. 0 | 7 2·1 | 7 10·6 | 9 19·5 | 2 5·5 | 2 3·7 | 11 21·0 | 9 20·4 | 6 0·9 |
| Mar. 0 | 7 17·6 | 7 25·3 | 9 26·2 | 2 4·9 | 2 3·3 | 11 21·8 | 9 21·3 | 5 29·4 |
| Apr. 0 | 8 2·8 | 8 8·9 | 10 2·9 | 2 5·8 | 2 3·6 | 11 23·0 | 9 22·0 | 5 27·7 |
| May 0 | 8 13·7 | 8 16·7 | 10 8·4 | 2 8·2 | 2 4·6 | 11 24·1 | 9 22·5 | 5 26·1 |
| June 0 | 8 17·1 | 8 14·7 | 10 12·1 | 2 11·7 | 2 6·2 | 11 25·1 | 9 22·5 | 5 24·5 |
| July 0 | 8 10·4 | 8 6·2 | 10 13·2 | 2 15·5 | 2 8·0 | 11 25·6 | 9 21·9 | 5 22·9 |
| Aug. 0 | 8 4·4 | 8 5·8 | 10 11·3 | 2 19·5 | 2 9·7 | 11 25·6 | 9 21·2 | 5 21·3 |
| Sept. 0 | 8 10·3 | 8 16·7 | 10 7·1 | 2 22·9 | 2 11·1 | 11 25·2 | 9 20·6 | 5 19·6 |
| Oct. 0 | 8 24·5 | 9 3·4 | 10 4·3 | 2 25·2 | 2 11·7 | 11 24·4 | 9 20·2 | 5 18·0 |
| Nov. 0 | 9 13·7 | 9 23·8 | 10 3·4 | 2 26·0 | 2 11·6 | 11 23·6 | 9 20·2 | 5 16·4 |
| Dec. 0 | 10 4·3 | 10 15·0 | 10 5·4 | 2 25·2 | 2 10·7 | 11 23·0 | 9 20·5 | 5 14·8 |
| **2034** | | | | | | | | |
| Jan. 0 | 10 26·4 | 11 7·2 | 10 10·4 | 2 23·0 | 2 9·4 | 11 22·9 | 9 21·2 | 5 13·2 |
| Feb. 0 | 11 18·7 | 11 29·3 | 10 16·9 | 2 20·6 | 2 8·3 | 11 23·3 | 9 21·9 | 5 11·5 |
| Mar. 0 | 0 8·5 | 0 18·9 | 10 23·5 | 2 19·2 | 2 7·7 | 11 24·0 | 9 22·8 | 5 10·0 |
| Apr. 0 | 0 29·9 | 1 10·1 | 11 0·9 | 2 19·3 | 2 7·9 | 11 25·1 | 9 23·5 | 5 8·4 |
| May 0 | 1 20·2 | 2 0·2 | 11 7·8 | 2 21·1 | 2 8·8 | 11 26·2 | 9 24·0 | 5 6·8 |
| June 0 | 2 10·7 | 2 20·5 | 11 13·8 | 2 24·1 | 2 10·4 | 11 27·2 | 9 23·9 | 5 5·2 |
| July 0 | 3 0·2 | 3 9·8 | 11 18·0 | 2 27·8 | 2 12·2 | 11 27·7 | 9 23·4 | 5 3·6 |
| Aug. 0 | 3 20·0 | 3 29·6 | 11 19·9 | 3 1·8 | 2 13·9 | 11 27·8 | 9 22·7 | 5 1·9 |
| Sept. 0 | 4 9·8 | 4 19·3 | 11 18·7 | 3 5·5 | 2 15·4 | 11 27·4 | 9 22·1 | 5 0·3 |
| Oct. 0 | 4 28·9 | 5 8·5 | 11 15·2 | 3 8·3 | 2 16·1 | 11 26·6 | 9 21·7 | 4 28·7 |
| Nov. 0 | 5 18·7 | 5 28·4 | 11 11·4 | 3 9·9 | 2 16·1 | 11 25·8 | 9 21·7 | 4 27·1 |
| Dec. 0 | 6 8·1 | 6 17·8 | 11 10·0 | 3 9·9 | 2 15·4 | 11 25·2 | 9 22·0 | 4 25·5 |
| Dec. 31 | 6 28·2 | 7 8·0 | 11 11·6 | 3 8·2 | 2 14·1 | 11 25·0 | 9 22·7 | 4 23·9 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **2035** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Sun. | 8 15 1 | 4 21 16 | 8·19 | 20·509 | 26·9 | 360·4 |
| Feb. 0 | Wed. | 9 16 35 | 6 9 44 | 11·94 | 22·001 | 57·9 | 391·4 |
| Mar. 0 | Wed. | 10 14 52 | 6 18 40 | 12·42 | 20·446 | 85·9 | 419·4 |
| Apr. 0 | Sat. | 11 15 46 | 8 7 8 | 16·17 | 21·939 | 1·0 | 450·4 |
| May 0 | Mon. | 0 15 9 | 9 12 26 | 18·84 | 22·416 | 31·0 | 480·4 |
| June 0 | Thur. | 1 15 4 | 11 0 54 | 22·59 | 23·909 | 62·0 | 511·4 |
| July 0 | Sat. | 2 13 44 | 0 6 11 | 25·25 | 24·385 | 92·0 | 541·4 |
| Aug. 0 | Tues. | 3 13 19 | 1 24 39 | 29·00 | 25·878 | 7·1 | 572·4 |
| Sept. 0 | Fri. | 4 13 6 | 3 13 7 | 2·75 | 27·371 | 38·1 | 19·5 |
| Oct. 0 | Sun. | 5 12 19 | 4 18 25 | 5·41 | 27·848 | 68·1 | 49·5 |
| Nov. 0 | Wed. | 6 13 2 | 6 6 53 | 9·16 | 29·341 | 99·1 | 80·5 |
| Dec. 0 | Fri. | 7 13 14 | 7 12 10 | 11·83 | 29·818 | 13·3 | 110·5 |
| **2036** | | | | | | | |
| Jan. 0 | Mon. | 8 14 45 | 9 0 38 | 15·58 | 1·311 | 44·3 | 141·5 |
| Feb. 0 | Thur. | 9 16 19 | 10 19 6 | 19·33 | 2·803 | 75·3 | 172·5 |
| Mar. 0 | Fri. | 10 15 37 | 11 11 13 | 20·90 | 2·264 | 104·3 | 201·5 |
| Apr. 0 | Mon. | 11 16 30 | 0 29 41 | 24·65 | 3·757 | 19·4 | 232·5 |
| May 0 | Wed. | 0 15 53 | 2 4 59 | 27·32 | 4·234 | 49·4 | 262·5 |
| June 0 | Sat. | 1 15 47 | 3 23 27 | 1·07 | 5·727 | 80·4 | 293·5 |
| July 0 | Mon. | 2 14 26 | 4 28 44 | 3·73 | 6·204 | 110·4 | 323·5 |
| Aug. 0 | Thur. | 3 14 1 | 6 17 12 | 7·48 | 7·696 | 25·5 | 354·5 |
| Sept. 0 | Sun. | 4 13 49 | 8 5 40 | 11·23 | 9·189 | 56·5 | 385·5 |
| Oct. 0 | Tues. | 5 13 3 | 9 10 57 | 13·90 | 9·666 | 86·5 | 415·5 |
| Nov. 0 | Fri. | 6 13 47 | 10 29 26 | 17·65 | 11·159 | 1·6 | 446·5 |
| Dec. 0 | Sun. | 7 13 59 | 0 4 43 | 20·31 | 11·636 | 31·6 | 476·5 |
| **2037** | | | | | | | |
| Jan. 0 | Wed. | 8 15 31 | 1 23 11 | 24·06 | 13·128 | 62·6 | 507·5 |
| Feb. 0 | Sat. | 9 17 5 | 3 11 39 | 27·81 | 14·621 | 93·6 | 538·5 |
| Mar. 0 | Sat. | 10 15 22 | 3 20 35 | 28·30 | 13·066 | 5·7 | 566·5 |
| Apr. 0 | Tues. | 11 16 15 | 5 9 3 | 2·05 | 14·559 | 36·7 | 13·6 |
| May 0 | Thur. | 0 15 38 | 6 14 21 | 4·71 | 15·036 | 66·7 | 43·6 |
| June 0 | Sun. | 1 15 32 | 8 2 49 | 8·46 | 16·529 | 97·7 | 74·6 |
| July 0 | Tues. | 2 14 12 | 9 8 6 | 11·12 | 17·006 | 11·9 | 104·6 |
| Aug. 0 | Fri. | 3 13 47 | 10 26 34 | 14·88 | 18·498 | 42·9 | 135·6 |
| Sept. 0 | Mon. | 4 13 34 | 0 15 2 | 18·63 | 19·991 | 73·9 | 166·6 |
| Oct. 0 | Wed. | 5 12 48 | 1 20 20 | 21·29 | 20·468 | 103·9 | 196·6 |
| Nov. 0 | Sat. | 6 13 31 | 3 8 48 | 25·04 | 21·961 | 19·0 | 227·6 |
| Dec. 0 | Mon. | 7 13 44 | 4 14 5 | 27·70 | 22·438 | 49·0 | 257·6 |
| **2038** | | | | | | | |
| Jan. 0 | Thur. | 8 15 15 | 6 2 33 | 1·45 | 23·930 | 80·0 | 288·6 |
| Feb. 0 | Sun. | 9 16 49 | 7 21 1 | 5·21 | 25·423 | 111·0 | 319·6 |
| Mar. 0 | Sun. | 10 15 6 | 7 29 58 | 5·69 | 23·868 | 23·1 | 347·6 |
| Apr. 0 | Wed. | 11 16 0 | 9 18 26 | 9·44 | 25·361 | 54·1 | 378·6 |
| May 0 | Fri. | 0 15 23 | 10 23 43 | 12·00 | 25·838 | 84·1 | 408·6 |
| June 0 | Mon. | 1 15 17 | 0 12 11 | 15·86 | 27·331 | 115·1 | 439·6 |
| July 0 | Wed. | 2 13 57 | 1 17 28 | 18·52 | 27·807 | 29·2 | 469·6 |
| Aug. 0 | Sat. | 3 13 32 | 3 5 57 | 22·27 | 29·300 | 60·2 | 500·6 |
| Sept. 0 | Tues. | 4 13 19 | 4 24 25 | 26·02 | 0·793 | 91·2 | 531·6 |
| Oct. 0 | Thur. | 5 12 33 | 5 29 42 | 28·68 | 1·270 | 5·4 | 561·6 |
| Nov. 0 | Sun. | 6 13 16 | 7 18 10 | 2·43 | 2·763 | 36·4 | 8·7 |
| Dec. 0 | Tues. | 7 13 28 | 8 23 27 | 5·10 | 3·240 | 66·4 | 38·7 |
| Dec. 31 | Fri. | 8 14 59 | 10 11 55 | 8·85 | 4·732 | 97·4 | 69·7 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2035** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 6 28·2 | 7 8·0 | 11 11·6 | 3 8·2 | 2 14·1 | 11 25·0 | 9 22·7 | 4 23·9 |
| Feb. 0 | 7 18·5 | 7 28·4 | 11 16·1 | 3 5·7 | 2 12·9 | 11 25·4 | 9 23·3 | 4 22·2 |
| Mar. 0 | 8 6·9 | 8 16·7 | 11 21·7 | 3 3·8 | 2 12·2 | 11 26·1 | 9 24·2 | 4 20·7 |
| Apr. 0 | 8 27·2 | 9 6·8 | 11 28·8 | 3 3·2 | 2 12·3 | 11 27·2 | 9 24·9 | 4 19·1 |
| May 0 | 9 16·4 | 9 25·7 | 0 6·0 | 3 4·2 | 2 13·1 | 11 28·5 | 9 25·4 | 4 17·5 |
| June 0 | 10 5·2 | 10 13·5 | 0 13·2 | 3 6·5 | 2 14·6 | 11 29·5 | 9 25·3 | 4 15·9 |
| July 0 | 10 20·8 | 10 26·9 | 0 19·3 | 3 10·1 | 2 16·3 | 0 0·1 | 9 24·8 | 4 14·3 |
| Aug. 0 | 11 1·2 | 11 2·4 | 0 24·1 | 3 14·0 | 2 18·2 | 0 0·2 | 9 24·1 | 4 12·6 |
| Sept. 0 | 11 0·5 | 10 26·6 | 0 26·6 | 3 17·9 | 2 19·7 | 11 29·9 | 9 23·5 | 4 11·0 |
| Oct. 0 | 10 23·1 | 10 21·9 | 0 26·1 | 3 21·2 | 2 20·5 | 11 29·2 | 9 23·1 | 4 9·4 |
| Nov. 0 | 10 23·9 | 10 28·2 | 0 22·7 | 3 23·3 | 2 20·7 | 11 28·4 | 9 23·1 | 4 7·7 |
| Dec. 0 | 11 4·3 | 11 11·5 | 0 18·8 | 3 24·0 | 2 20·0 | 11 27·7 | 9 23·4 | 4 6·2 |
| **2036** | | | | | | | | |
| Jan. 0 | 11 20·2 | 11 28·8 | 0 16·7 | 3 23·0 | 2 18·8 | 11 27·5 | 9 24·0 | 4 4·5 |
| Feb. 0 | 0 8·4 | 0 17·6 | 0 17·6 | 3 21·2 | 2 17·5 | 11 27·7 | 9 24·7 | 4 2·9 |
| Mar. 0 | 0 26·3 | 1 5·7 | 0 21·3 | 3 18·6 | 2 16·7 | 11 28·4 | 9 25·5 | 4 1·4 |
| Apr. 0 | 1 15·7 | 1 25·2 | 0 27·1 | 3 17·2 | 2 16·7 | 11 29·4 | 9 26·3 | 3 29·7 |
| May 0 | 2 4·6 | 2 14·0 | 1 3·7 | 3 17·5 | 2 17·5 | 0 0·6 | 9 26·8 | 3 28·2 |
| June 0 | 2 24·0 | 3 3·4 | 1 11·0 | 3 19·3 | 2 18·9 | 0 1·6 | 9 27·0 | 3 26·5 |
| July 0 | 3 12·8 | 3 22·2 | 1 17·8 | 3 22·3 | 2 20·6 | 0 2·2 | 9 26·7 | 3 24·9 |
| Aug. 0 | 4 2·3 | 4 11·8 | 1 24·2 | 3 26·0 | 2 22·4 | 0 2·4 | 9 26·1 | 3 23·3 |
| Sept. 0 | 4 21·9 | 5 1·5 | 1 29·1 | 4 0·0 | 2 24·0 | 0 2·1 | 9 25·5 | 3 21·7 |
| Oct. 0 | 5 11·2 | 5 21·0 | 2 1·7 | 4 3·5 | 2 25·0 | 0 1·4 | 9 25·0 | 3 20·1 |
| Nov 0 | 6 1·5 | 6 11·5 | 2 1·7 | 4 6·3 | 2 25·2 | 0 0·6 | 9 24·9 | 3 18·4 |
| Dec. 0 | 6 21·6 | 7 1·8 | 1 29·2 | 4 7·6 | 2 24·6 | 11 29·9 | 9 25·0 | 3 16·8 |
| **2037** | | | | | | | | |
| Jan. 0 | 7 12·8 | 7 23·3 | 1 24·7 | 4 7·3 | 2 23·5 | 11 29·6 | 9 25·5 | 3 15·2 |
| Feb. 0 | 8 4·6 | 8 15·3 | 1 22·2 | 4 5·7 | 2 22·2 | 11 29·8 | 9 26·1 | 3 13·5 |
| Mar. 0 | 8 24·7 | 9 5·6 | 1 22·6 | 4 3·3 | 2 21·3 | 0 0·5 | 9 26·9 | 3 12·0 |
| Apr. 0 | 9 17·3 | 9 28·3 | 1 25·8 | 4 1·3 | 2 21·2 | 0 1·5 | 9 27·7 | 3 10·3 |
| May 0 | 10 9·4 | 10 20·4 | 2 1·0 | 4 0·8 | 2 21·8 | 0 2·8 | 9 28·5 | 3 8·8 |
| June 0 | 11 2·1 | 11 12·8 | 2 7·4 | 4 2·0 | 2 23·1 | 0 3·8 | 9 29·0 | 3 7·1 |
| July 0 | 11 23·3 | 0 3·4 | 2 14·1 | 4 4·4 | 2 24·8 | 0 4·5 | 9 29·2 | 3 5·5 |
| Aug. 0 | 0 13·5 | 0 22·2 | 2 21·1 | 4 7·9 | 2 26·7 | 0 4·7 | 9 28·9 | 3 3·9 |
| Sept. 0 | 1 0·3 | 1 6·3 | 2 27·4 | 4 11·8 | 2 28·4 | 0 4·4 | 9 28·3 | 3 2·2 |
| Oct. 0 | 1 10·2 | 1 11·2 | 3 2·2 | 4 15·4 | 2 29·4 | 0 3·7 | 9 27·7 | 3 0·7 |
| Nov. 0 | 1 8·7 | 1 3·8 | 3 5·2 | 4 18·6 | 2 29·8 | 0 2·9 | 9 27·2 | 2 29·0 |
| Dec. 0 | 0 28·6 | 0 25·7 | 3 5·3 | 4 20·6 | 2 29·3 | 0 2·2 | 9 27·1 | 2 27·6 |
| **2038** | | | | | | | | |
| Jan. 0 | 0 25·8 | 0 28·6 | 3 2·5 | 4 21·1 | 2 28·2 | 0 1·9 | 9 27·2 | 2 25·8 |
| Feb. 0 | 1 3·7 | 1 9·8 | 2 28·5 | 4 19·8 | 2 26·9 | 0 2·1 | 9 27·6 | 2 24·1 |
| Mar. 0 | 1 15·8 | 1 23·3 | 2 26·0 | 4 17·7 | 2 26·0 | 0 2·8 | 9 28·3 | 2 22·7 |
| Apr. 0 | 2 1·9 | 2 10·2 | 2 25·8 | 4 15·5 | 2 25·7 | 0 3·7 | 9 29·1 | 2 21·0 |
| May 0 | 2 18·7 | 2 27·4 | 2 28·6 | 4 14·3 | 2 26·2 | 0 4·9 | 9 29·9 | 2 19·4 |
| June 0 | 3 6·9 | 3 15·8 | 3 3·4 | 4 14·7 | 2 27·4 | 0 5·9 | 10 0·4 | 2 17·8 |
| July 0 | 3 25·9 | 4 4·1 | 3 9·3 | 4 16·5 | 2 29·1 | 0 6·6 | 10 0·6 | 2 16·2 |
| Aug. 0 | 4 14·0 | 4 23·4 | 3 16·0 | 4 19·6 | 3 1·0 | 0 6·8 | 10 0·3 | 2 14·5 |
| Sept. 0 | 5 3·6 | 5 13·3 | 3 22·8 | 4 23·3 | 3 2·7 | 0 6·6 | 9 29·7 | 2 12·9 |
| Oct. 0 | 5 23·1 | 6 3·1 | 3 28·7 | 4 27·0 | 3 3·9 | 0 6·0 | 9 29·1 | 2 11·3 |
| Nov. 0 | 6 13·9 | 6 24·2 | 4 3·8 | 5 0·5 | 3 4·4 | 0 5·2 | 9 28·6 | 2 9·7 |
| Dec. 0 | 7 4·6 | 7 15·3 | 4 6·7 | 5 3·0 | 3 4·1 | 0 4·4 | 9 28·5 | 2 8·1 |
| Dec. 31 | 7 26·8 | 8 7·8 | 4 6·9 | 5 4·2 | 3 3·0 | 0 4·1 | 9 28·6 | 2 6·4 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction | |
|---|---|---|---|---|---|---|---|
| | | | | | | Mercury | Venus |
| **2039** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Fri. | 8 14 59 | 10 11 55 | 8·85 | 4·732 | 97·4 | 69·7 |
| Feb. 0 | Mon. | 9 16 33 | 0 0 24 | 12·60 | 6·225 | 12·5 | 100·7 |
| Mar. 0 | Mon. | 10 14 51 | 0 9 20 | 13·08 | 4·670 | 40·5 | 128·7 |
| Apr. 0 | Thur. | 11 15 44 | 1 27 48 | 16·84 | 6·163 | 71·5 | 159·7 |
| May 0 | Sat. | 0 15 8 | 3 3 5 | 19·50 | 6·640 | 101·5 | 189·7 |
| June 0 | Tues. | 1 15 2 | 4 21 33 | 23·25 | 8·133 | 16·6 | 220·7 |
| July 0 | Thur. | 2 13 42 | 5 26 51 | 25·91 | 8·609 | 46·6 | 250·7 |
| Aug. 0 | Sun. | 3 13 17 | 7 15 19 | 29·66 | 10·102 | 77·6 | 281·7 |
| Sept. 0 | Wed. | 4 13 4 | 9 3 47 | 3·41 | 11·595 | 108·6 | 312·7 |
| Oct. 0 | Fri. | 5 12 18 | 10 9 4 | 6·08 | 12·072 | 22·7 | 342·7 |
| Nov. 0 | Mon | 6 13 1 | 11 27 32 | 9·83 | 13·565 | 53·7 | 373·7 |
| Dec. 0 | Wed. | 7 13 13 | 1 2 50 | 12·49 | 14·041 | 83·7 | 403·7 |
| **2040** | | | | | | | |
| Jan. 0 | Sat. | 8 14 41 | 2 21 18 | 16·24 | 15·534 | 114·7 | 434·7 |
| Feb. 0 | Tues. | 9 16 17 | 4 9 46 | 19·99 | 17·027 | 29·8 | 465·7 |
| Mar. 0 | Wed. | 10 15 36 | 5 1 53 | 21·57 | 16·488 | 58·8 | 494·7 |
| Apr. 0 | Sat. | 11 16 28 | 6 20 21 | 25·32 | 17·981 | 89·8 | 525·7 |
| May 0 | Mon. | 0 15 51 | 7 25 38 | 27·98 | 18·458 | 4·0 | 555·7 |
| June 0 | Thur. | 1 15 45 | 9 14 6 | 1·73 | 19·950 | 35·0 | 2·8 |
| July 0 | Sat. | 2 14 25 | 10 19 24 | 4·39 | 20·427 | 65·0 | 32·8 |
| Aug. 0 | Tues. | 3 14 0 | 0 7 52 | 8·15 | 21·920 | 96·0 | 63·8 |
| Sept. 0 | Fri. | 4 13 48 | 1 26 20 | 11·90 | 23·413 | 11·1 | 94·8 |
| Oct. 0 | Sun. | 5 13 2 | 3 1 37 | 14·56 | 23·890 | 41·1 | 124·8 |
| Nov. 0 | Wed. | 6 13 45 | 4 20 5 | 18·31 | 25·382 | 72·1 | 155·8 |
| Dec. 0 | Fri. | 7 13 58 | 5 25 23 | 20·97 | 25·859 | 102·1 | 185·8 |
| **2041** | | | | | | | |
| Jan. 0 | Mon. | 8 15 29 | 7 13 51 | 24·72 | 27·352 | 17·2 | 216·8 |
| Feb. 0 | Thur. | 9 17 3 | 9 2 19 | 28·48 | 28·845 | 48·2 | 247·8 |
| Mar. 0 | Thur. | 10 15 20 | 9 11 15 | 28·96 | 27·290 | 76·2 | 275·8 |
| Apr. 0 | Sun. | 11 16 13 | 10 29 43 | 2·71 | 28·783 | 107·2 | 306·8 |
| May 0 | Tues. | 0 15 36 | 0 5 0 | 5·37 | 29·260 | 21·3 | 336·8 |
| June 0 | Fri. | 1 15 30 | 1 23 28 | 9·13 | 0·752 | 52·3 | 367·8 |
| July 0 | Sun. | 2 14 10 | 2 28 46 | 11·79 | 1·229 | 82·3 | 397·8 |
| Aug. 0 | Wed. | 3 13 45 | 4 17 14 | 15·54 | 2·722 | 113·3 | 428·8 |
| Sept. 0 | Sat. | 4 13 33 | 6 5 42 | 19·29 | 4·215 | 28·5 | 459·8 |
| Oct. 0 | Mon. | 5 12 47 | 7 10 59 | 21·95 | 4·692 | 58·5 | 489·8 |
| Nov. 0 | Thur. | 6 13 30 | 8 29 27 | 25·70 | 6·184 | 89·5 | 520·8 |
| Dec. 0 | Sat. | 7 13 42 | 10 4 45 | 28·37 | 6·661 | 3·6 | 550·8 |
| **2042** | | | | | | | |
| Jan. 0 | Tues. | 8 15 13 | 11 23 13 | 2·12 | 8·154 | 34·6 | 581·8 |
| Feb. 0 | Fri. | 9 16 47 | 1 11 41 | 5·87 | 9·647 | 65·6 | 28·8 |
| Mar. 0 | Fri. | 10 15 5 | 1 20 37 | 6·35 | 8·092 | 93·6 | 56·8 |
| Apr. 0 | Mon. | 11 15 58 | 3 9 5 | 10·10 | 9·585 | 8·7 | 87·8 |
| May 0 | Wed. | 0 15 21 | 4 14 23 | 12·77 | 10·062 | 38·7 | 117·8 |
| June 0 | Sat. | 1 15 16 | 6 2 51 | 16·52 | 11·554 | 69·7 | 148·8 |
| July 0 | Mon. | 2 13 56 | 7 8 8 | 19·18 | 12·031 | 99·7 | 178·8 |
| Aug. 0 | Thur. | 3 13 30 | 8 26 36 | 22·93 | 13·524 | 14·8 | 209·8 |
| Sept. 0 | Sun. | 4 13 18 | 10 15 4 | 26·68 | 15·017 | 45·8 | 240·8 |
| Oct. 0 | Tues. | 5 12 31 | 11 20 22 | 29·35 | 15·494 | 75·8 | 270·8 |
| Nov. 0 | Fri. | 6 13 14 | 1 8 50 | 3·10 | 16·986 | 106·8 | 301·8 |
| Dec. 0 | Sun. | 7 13 26 | 2 14 7 | 5·76 | 17·463 | 21·0 | 331·8 |
| Dec. 31 | Wed. | 8 14 58 | 4 2 35 | 9·51 | 18·956 | 52·0 | 362·8 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2039** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 7 26·8 | 8 7·8 | 4 6·9 | 5 4·2 | 3 3·0 | 0 4·1 | 9 28·6 | 2 6·4 |
| Feb. 0 | 8 19·7 | 9 1·0 | 4 4·1 | 5 3·7 | 3 1·7 | 0 4·2 | 9 29·0 | 2 4·8 |
| Mar. 0 | 9 10·9 | 9 22·3 | 4 0·5 | 5 1·9 | 3 0·7 | 0 4·1 | 9 29·7 | 2 3·3 |
| Apr. 0 | 10 4·6 | 10 16·2 | 3 27·6 | 4 29·5 | 3 0·3 | 0 5·9 | 10 0·5 | 2 1·7 |
| May 0 | 10 27·8 | 11 9·2 | 3 27·4 | 4 27·8 | 3 0·7 | 0 7·1 | 10 1·3 | 2 0·1 |
| June 0 | 11 21·4 | 0 2·5 | 3 29·8 | 4 27·5 | 3 1·8 | 0 8·1 | 10 1·8 | 1 28·4 |
| July 0 | 0 13·5 | 0 24·2 | 4 4·2 | 4 28·7 | 3 3·4 | 0 8·9 | 10 2·0 | 1 26·8 |
| Aug. 0 | 1 5·2 | 1 15·1 | 4 10·2 | 5 1·3 | 3 5·3 | 0 9·1 | 10 1·7 | 1 25·2 |
| Sept. 0 | 1 25·1 | 2 3·8 | 4 16·7 | 5 4·7 | 3 7·1 | 0 8·9 | 10 1·1 | 1 23·5 |
| Oct. 0 | 2 11·6 | 2 18·4 | 4 23·2 | 5 8·2 | 3 8·3 | 0 8·2 | 10 0·5 | 1 21·9 |
| Nov. 0 | 2 23·8 | 2 26·8 | 4 29·3 | 5 12·1 | 3 9·0 | 0 7·4 | 10 0·0 | 1 20·3 |
| Dec. 0 | 2 27·1 | 2 24·2 | 5 4·0 | 5 15·0 | 3 8·8 | 0 6·7 | 9 29·9 | 1 18·7 |
| **2040** | | | | | | | | |
| Jan. 0 | 2 18·4 | 2 12·8 | 5 7·0 | 5 16·7 | 3 7·8 | 0 6·3 | 10 0·0 | 1 17·1 |
| Feb. 0 | 2 9·2 | 2 8·9 | 5 7·1 | 5 16·9 | 3 6·5 | 0 6·5 | 10 0·4 | 1 15·5 |
| Mar. 0 | 2 10·9 | 2 15·0 | 5 4·6 | 5 15·6 | 3 5·4 | 0 7·1 | 10 1·1 | 1 14·0 |
| Apr. 0 | 2 20·9 | 2 27·4 | 5 0·8 | 5 13·3 | 3 4·9 | 0 8·0 | 10 1·9 | 1 12·3 |
| May 0 | 3 4·6 | 3 12·3 | 4 28·0 | 5 11·2 | 3 5·2 | 0 9·2 | 10 2·7 | 1 10·7 |
| June 0 | 3 21·0 | 3 29·4 | 4 27·7 | 5 10·3 | 3 6·2 | 0 10·2 | 10 3·2 | 1 9·1 |
| July 0 | 4 8·1 | 4 17·0 | 4 29·9 | 5 10·8 | 3 7·8 | 0 11·0 | 10 3·4 | 1 7·5 |
| Aug. 0 | 4 26·8 | 5 6·1 | 5 4·6 | 5 12·8 | 3 9·7 | 0 11·3 | 10 3·1 | 1 5·9 |
| Sept. 0 | 5 16·3 | 5 26·1 | 5 10·4 | 5 15·9 | 3 11·5 | 0 11·1 | 10 2·5 | 1 4·2 |
| Oct. 0 | 6 6·1 | 6 16·3 | 5 16·8 | 5 19·6 | 3 12·8 | 0 10·5 | 10 1·9 | 1 2·6 |
| Nov. 0 | 6 27·4 | 7 8·0 | 5 23·1 | 5 23·2 | 3 13·6 | 0 9·7 | 10 1·4 | 1 1·0 |
| Dec. 0 | 7 18·9 | 7 29·9 | 5 29·3 | 5 26·4 | 3 13·5 | 0 8·9 | 10 1·3 | 0 29·4 |
| **2041** | | | | | | | | |
| Jan. 0 | 8 11·9 | 8 23·3 | 6 3·9 | 5 28·7 | 3 12·6 | 0 8·5 | 10 1·4 | 0 27·7 |
| Feb. 0 | 9 5·6 | 9 17·3 | 6 6·9 | 5 29·5 | 3 11·3 | 0 8·6 | 10 1·8 | 0 26·1 |
| Mar. 0 | 9 27·4 | 10 9·2 | 6 7·0 | 5 28·8 | 3 10·2 | 0 9·2 | 10 2·5 | 0 24·6 |
| Apr. 0 | 10 21·8 | 11 3·5 | 6 4·5 | 5 26·8 | 3 9·5 | 0 10·2 | 10 3·2 | 0 22·9 |
| May 0 | 11 15·1 | 11 26·6 | 6 0·7 | 5 24·6 | 3 9·7 | 0 11·6 | 10 4·0 | 0 21·3 |
| June 0 | 0 8·7 | 0 19·8 | 5 27·9 | 5 23·0 | 3 10·6 | 0 12·6 | 10 4·5 | 0 19·7 |
| July 0 | 1 0·7 | 1 11·4 | 5 27·6 | 5 22·9 | 3 12·1 | 0 13·4 | 10 4·7 | 0 18·1 |
| Aug. 0 | 1 22·4 | 2 2·5 | 6 0·0 | 5 24·3 | 3 14·0 | 0 13·7 | 10 4·4 | 0 16·6 |
| Sept. 0 | 2 12·8 | 2 22·1 | 6 4·6 | 5 27·0 | 3 15·9 | 0 13·6 | 10 3·8 | 0 14·8 |
| Oct. 0 | 3 1·0 | 3 9·3 | 6 10·2 | 6 0·4 | 3 17·3 | 0 12·8 | 10 3·2 | 0 13·2 |
| Nov. 0 | 3 17·2 | 3 23·7 | 6 16·8 | 6 4·1 | 3 18·2 | 0 12·1 | 10 2·7 | 0 11·6 |
| Dec. 0 | 3 29·0 | 4 2·4 | 6 23·4 | 6 7·5 | 3 18·2 | 0 11·4 | 10 2·6 | 0 10·0 |
| **2042** | | | | | | | | |
| Jan. 0 | 4 3·4 | 4 1·4 | 6 29·5 | 6 10·2 | 3 17·4 | 0 10·8 | 10 2·7 | 0 8·4 |
| Feb. 0 | 3 26·2 | 3 20·3 | 7 4·5 | 6 11·6 | 3 16·2 | 0 10·8 | 10 3·1 | 0 6·7 |
| Mar. 0 | 3 16·3 | 3 14·1 | 7 7·2 | 6 11·5 | 3 15·0 | 0 11·6 | 10 3·8 | 0 5·2 |
| Apr. 0 | 3 14·9 | 3 18·0 | 7 7·3 | 6 9·8 | 3 14·3 | 0 12·4 | 10 4·5 | 0 3·6 |
| May 0 | 3 22·7 | 3 28·7 | 7 4·9 | 6 7·6 | 3 14·3 | 0 13·6 | 10 5·3 | 0 2·0 |
| June 0 | 4 6·1 | 4 13·6 | 7 1·1 | 6 5·8 | 3 15·1 | 0 14·7 | 10 5·8 | 0 0·4 |
| July 0 | 4 21·7 | 5 0·3 | 6 28·4 | 6 5·0 | 3 16·5 | 0 15·5 | 10 6·0 | 11 28·8 |
| Aug. 0 | 5 9·8 | 5 19·0 | 6 27·9 | 6 5·7 | 3 18·4 | 0 15·9 | 10 5·7 | 11 27·1 |
| Sept. 0 | 5 29·2 | 6 9·1 | 7 0·4 | 6 8·0 | 3 20·2 | 0 15·7 | 10 5·1 | 11 25·5 |
| Oct. 0 | 6 19·2 | 6 29·6 | 7 4·7 | 6 11·0 | 3 21·8 | 0 15·2 | 10 4·5 | 11 23·9 |
| Nov. 0 | 7 11·0 | 7 21·9 | 7 10·7 | 6 14·6 | 3 22·8 | 0 14·4 | 10 4·0 | 11 22·2 |
| Dec. 0 | 8 3·1 | 8 14·5 | 7 17·4 | 6 18·2 | 3 22·9 | 0 13·5 | 10 3·9 | 11 20·7 |
| Dec. 31 | 8 26·8 | 9 8·3 | 7 24·2 | 6 21·3 | 3 22·3 | 0 12·8 | 10 4·0 | 11 19·0 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction Mercury | Days from Conjunction Venus |
|---|---|---|---|---|---|---|---|
| **2043** | | s ° ′ | s ° ′ | | | d | d |
| Jan. 0 | Wed. | 8 14 58 | 4 2 35 | 9·51 | 18·956 | 52·0 | 362·8 |
| Feb. 0 | Sat. | 9 16 31 | 5 21 3 | 13·26 | 20·449 | 83·0 | 393·8 |
| Mar. 0 | Sat. | 10 14 49 | 5 29 59 | 13·75 | 18·894 | 111·0 | 421·8 |
| Apr. 0 | Tues. | 11 15 43 | 7 18 27 | 17·50 | 20·387 | 26·1 | 452·8 |
| May 0 | Thur. | 0 15 6 | 8 23 45 | 20·16 | 20·863 | 56·1 | 482·8 |
| June 0 | Sun. | 1 15 1 | 10 12 13 | 23·91 | 22·356 | 87·1 | 513·8 |
| July 0 | Tues. | 2 13 41 | 11 17 30 | 26·57 | 22·833 | 1·2 | 543·8 |
| Aug. 0 | Fri. | 3 13 16 | 1 5 58 | 0·33 | 24·326 | 32·2 | 574·8 |
| Sept. 0 | Mon. | 4 13 3 | 2 24 26 | 4·08 | 25·819 | 63·2 | 21·9 |
| Oct. 0 | Wed. | 5 12 16 | 3 29 41 | 6·74 | 26·296 | 93·2 | 51·9 |
| Nov. 0 | Sat. | 6 12 59 | 5 18 12 | 10·49 | 27·788 | 8·3 | 82·9 |
| Dec. 0 | Mon | 7 13 11 | 6 23 29 | 13·15 | 28·265 | 38·3 | 112·9 |
| **2044** | | | | | | | |
| Jan. 0 | Thur. | 8 14 42 | 8 11 57 | 16·90 | 29·758 | 69·3 | 143·9 |
| Feb. 0 | Sun. | 9 16 16 | 10 0 25 | 20·66 | 1·251 | 100·3 | 174·9 |
| Mar. 0 | Mon. | 10 15 34 | 10 22 32 | 22·23 | 0·712 | 13·4 | 203·9 |
| Apr. 0 | Thur. | 11 16 27 | 0 11 0 | 25·98 | 2·204 | 44·4 | 234·9 |
| May 0 | Sat. | 0 15 49 | 1 16 18 | 28·64 | 2·681 | 74·4 | 264·9 |
| June 0 | Tues. | 1 15 44 | 3 4 46 | 2·39 | 4·174 | 105·4 | 295·9 |
| July 0 | Thur. | 2 14 24 | 4 10 3 | 5·06 | 4·651 | 19·6 | 325·9 |
| Aug. 0 | Sun. | 3 13 58 | 5 28 31 | 8·81 | 6·144 | 50·6 | 356·9 |
| Sept. 0 | Wed. | 4 13 46 | 7 16 59 | 12·56 | 7·636 | 81·6 | 387 9 |
| Oct. 0 | Fri. | 5 13 0 | 8 22 17 | 15·22 | 8·113 | 111·6 | 417·9 |
| Nov. 0 | Mon. | 6 13 44 | 10 10 45 | 18·97 | 9·606 | 26·7 | 448·9 |
| Dec. 0 | Wed. | 7 13 56 | 11 16 2 | 21·64 | 10·083 | 56·7 | 478·9 |
| **2045** | | | | | | | |
| Jan. 0 | Sat. | 8 15 27 | 1 4 30 | 25·39 | 11·576 | 87·7 | 509·9 |
| Feb. 0 | Tues. | 9 17 1 | 2 22 58 | 29·14 | 13·069 | 2·8 | 540·9 |
| Mar. 0 | Tues. | 10 15 19 | 3 1 54 | 29·62 | 11·514 | 30·8 | 568·9 |
| Apr. 0 | Fri. | 11 16 12 | 4 20 22 | 3·37 | 13·006 | 61·8 | 16·0 |
| May 0 | Sun. | 0 15 35 | 5 25 40 | 6·04 | 13·483 | 91·8 | 46·0 |
| June 0 | Wed. | 1 15 29 | 7 14 8 | 9·79 | 14·976 | 6·9 | 77·0 |
| July 0 | Fri. | 2 14 9 | 8 19 25 | 12·45 | 15·453 | 36·9 | 107·0 |
| Aug. 0 | Mon. | 3 13 44 | 10 7 53 | 16·20 | 16·946 | 67·9 | 138·0 |
| Sept. 0 | Thur. | 4 13 31 | 11 26 21 | 19·95 | 18·438 | 98·9 | 169·0 |
| Oct. 0 | Sat | 5 12 45 | 1 1 39 | 22·62 | 18·915 | 13·1 | 199·0 |
| Nov. 0 | Tues. | 6 13 28 | 2 20 7 | 26·37 | 20·408 | 44·1 | 230·0 |
| Dec. 0 | Thur. | 7 13 40 | 3 25 24 | 29·03 | 20·885 | 74·1 | 260·0 |
| **2046** | | | | | | | |
| Jan. 0 | Sun. | 8 15 12 | 5 13 52 | 2·78 | 22·378 | 105·1 | 291·0 |
| Feb. 0 | Wed. | 9 16 45 | 7 2 20 | 6·53 | 23·871 | 20·2 | 322·0 |
| Mar. 0 | Wed. | 10 15 3 | 7 11 17 | 7·02 | 22·316 | 48·2 | 350·0 |
| Apr. 0 | Sat. | 11 15 57 | 8 29 45 | 10·77 | 23·808 | 79·2 | 381·0 |
| May 0 | Mon. | 0 15 20 | 10 5 2 | 13·33 | 24·285 | 109·2 | 411·0 |
| June 0 | Thur | 1 15 14 | 11 23 30 | 17·18 | 25·778 | 24·3 | 442·0 |
| July 0 | Sat. | 2 13 54 | 0 28 48 | 19·84 | 26·255 | 54·3 | 472·0 |
| Aug. 0 | Tues. | 3 13 29 | 2 17 16 | 23·60 | 27·748 | 85·3 | 503·0 |
| Sept. 0 | Fri. | 4 13 16 | 4 5 44 | 27·35 | 29·240 | 0·4 | 534·0 |
| Oct. 0 | Sun. | 5 12 30 | 5 11 1 | 0·01 | 29·717 | 30·4 | 564·0 |
| Nov. 0 | Wed. | 6 13 13 | 6 29 29 | 3·76 | 1·210 | 61·4 | 11·1 |
| Dec. 0 | Fri. | 7 13 25 | 8 4 47 | 6·42 | 1·687 | 91·4 | 41·1 |
| Dec. 31 | Mon. | 8 14 56 | 9 23 15 | 10·17 | 3·180 | 6·5 | 72·1 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2043** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 8 26·8 | 9 8·3 | 7 24·2 | 6 21·3 | 3 22·3 | 0 12·8 | 10 4·0 | 11 19·0 |
| Feb. 0 | 9 20·9 | 10 2·8 | 8 0·7 | 6 23·2 | 3 21·1 | 0 12·9 | 10 4·4 | 11 17·4 |
| Mar. 0 | 10 13·0 | 10 24·9 | 8 5·4 | 6 23·7 | 3 19·9 | 0 13·6 | 10 5·1 | 11 15·9 |
| Apr. 0 | 11 7·5 | 11 19·1 | 8 8·6 | 6 22·6 | 3 19·0 | 0 14·6 | 10 5·8 | 11 14·2 |
| May 0 | 0 0·6 | 0 11·9 | 8 9·1 | 6 20·7 | 3 18·9 | 0 15·7 | 10 6·6 | 11 12·7 |
| June 0 | 0 23·8 | 1 4·7 | 8 6·8 | 6 18·4 | 3 19·6 | 0 16·7 | 10 7·1 | 11 11·0 |
| July 0 | 1 15·5 | 1 25·9 | 8 3·1 | 6 17·1 | 3 20·9 | 0 17·0 | 10 7·3 | 11 9·4 |
| Aug. 0 | 2 6·9 | 2 17·0 | 8 0·0 | 6 17·3 | 3 22·7 | 0 16·9 | 10 7·0 | 11 7·8 |
| Sept. 0 | 2 27·3 | 3 6·9 | 7 29·6 | 6 19·0 | 3 24·6 | 0 16·4 | 10 6·4 | 11 6·1 |
| Oct. 0 | 3 16·1 | 3 25·0 | 8 1·8 | 6 21·5 | 3 26·3 | 0 15·6 | 10 5·8 | 11 4·5 |
| Nov. 0 | 4 4·0 | 4 11·9 | 8 6·5 | 6 25·2 | 3 27·4 | 0 14·8 | 10 5·3 | 11 2·9 |
| Dec. 0 | 4 19·3 | 4 25·9 | 8 12·4 | 6 28·7 | 3 27·7 | 0 14·2 | 10 5·2 | 11 1·3 |
| **2044** | | | | | | | | |
| Jan. 0 | 5 1·5 | 5 5·3 | 8 19·5 | 7 2·1 | 3 27·1 | 0 14·2 | 10 5·3 | 10 29·7 |
| Feb. 0 | 5 7·0 | 5 5·7 | 8 26·6 | 7 4·5 | 3 26·0 | 0 14·7 | 10 5·7 | 10 28·0 |
| Mar. 0 | 5 2·1 | 4 26·2 | 9 2·9 | 7 5·4 | 3 24·7 | 0 15·5 | 10 6·4 | 10 26·5 |
| Apr. 0 | 4 20·7 | 4 18·0 | 9 8·2 | 7 5·0 | 3 23·8 | 0 16·7 | 10 7·1 | 10 24·9 |
| May 0 | 4 18·1 | 4 20·6 | 9 11·8 | 7 3·3 | 3 23·6 | 0 17·8 | 10 7·9 | 10 23·3 |
| June 0 | 4 24·9 | 5 1·4 | 9 12·7 | 7 1·0 | 3 24·2 | 0 18·8 | 10 8·4 | 10 21·7 |
| July 0 | 5 8·3 | 5 16·0 | 9 10·9 | 6 29·3 | 3 25·4 | 0 19·1 | 10 8·6 | 10 20·1 |
| Aug. 0 | 5 25·1 | 6 4·0 | 9 7·0 | 6 28·8 | 3 27·2 | 0 19·1 | 10 8·3 | 10 18·4 |
| Sept. 0 | 6 13·8 | 6 24·0 | 9 3·8 | 6 29·9 | 3 29·1 | 0 18·6 | 10 7·7 | 10 16·8 |
| Oct. 0 | 7 4·2 | 7 14·8 | 9 3·0 | 7 2·2 | 4 0·8 | 0 17·7 | 10 7·1 | 10 15·2 |
| Nov. 0 | 7 26·3 | 8 7·6 | 9 5·2 | 7 5·4 | 4 2·0 | 0 16·9 | 10 6·6 | 10 13·6 |
| Dec. 0 | 8 19·0 | 9 0·5 | 9 9·6 | 7 9·0 | 4 2·4 | 0 16·4 | 10 6·5 | 10 12·0 |
| **2045** | | | | | | | | |
| Jan. 0 | 9 13·0 | 9 24·8 | 9 15·8 | 7 12·5 | 4 2·0 | 0 16·3 | 10 6·6 | 10 10·3 |
| Feb. 0 | 10 7·5 | 10 19·4 | 9 23·0 | 7 15·3 | 4 0·9 | 0 16·8 | 10 7·0 | 10 8·7 |
| Mar. 0 | 10 29·6 | 11 11·2 | 9 27·7 | 7 16·8 | 3 29·7 | 0 17·6 | 10 7·7 | 10 7·1 |
| Apr. 0 | 11 23·5 | 0 4·9 | 10 6·7 | 7 16·9 | 3 28·6 | 0 18·9 | 10 8·4 | 10 5·5 |
| May 0 | 0 16·1 | 0 27·1 | 10 12·4 | 7 15·6 | 3 28·2 | 0 20·0 | 10 9·2 | 10 3·9 |
| June 0 | 1 8·7 | 1 19·3 | 10 16·6 | 7 13·5 | 3 28·7 | 0 21·1 | 10 9·7 | 10 2·3 |
| July 0 | 1 29·7 | 2 10·0 | 10 18·3 | 7 11·5 | 3 29·9 | 0 22·1 | 10 9·9 | 10 0·7 |
| Aug. 0 | 2 20·7 | 3 0·6 | 10 17·0 | 7 10·4 | 4 1·6 | 0 22·6 | 10 9·6 | 9 29·0 |
| Sept. 0 | 3 11·0 | 3 20·5 | 10 13·4 | 7 10·8 | 4 3·5 | 0 22·6 | 10 9·0 | 9 27·4 |
| Oct. 0 | 3 29·9 | 4 9·0 | 10 9·8 | 7 12·8 | 4 5·2 | 0 22·2 | 10 8·4 | 9 25·8 |
| Nov. 0 | 4 18·5 | 4 27·2 | 10 8·4 | 7 15·6 | 4 6·6 | 0 21·4 | 10 7·9 | 9 24·2 |
| Dec. 0 | 5 5·6 | 5 13·6 | 10 10·0 | 7 19·1 | 4 7·1 | 0 20·6 | 10 7·8 | 9 22·6 |
| **2046** | | | | | | | | |
| Jan. 0 | 5 21·6 | 5 28·3 | 10 14·4 | 7 22·7 | 4 6·8 | 0 20·0 | 10 7·9 | 9 20·9 |
| Feb. 0 | 6 4·4 | 6 8·9 | 10 20·6 | 7 25·6 | 4 5·8 | 0 19·9 | 10 8·4 | 9 19·3 |
| Mar. 0 | 6 11·2 | 6 11·7 | 10 27·1 | 7 27·7 | 4 4·6 | 0 20·3 | 10 9·0 | 9 17·8 |
| Apr. 0 | 6 9·2 | 6 4·3 | 11 4·6 | 7 28·5 | 4 3·4 | 0 21·0 | 10 9·8 | 9 16·2 |
| May 0 | 5 28·8 | 5 24·6 | 11 11·6 | 7 27·7 | 4 3·0 | 0 22·1 | 10 10·4 | 9 14·6 |
| June 0 | 5 23·8 | 5 25·6 | 11 17·9 | 7 25·8 | 4 3·3 | 0 23·2 | 10 10·7 | 9 12·9 |
| July 0 | 6 0·3 | 6 5·5 | 11 22·5 | 7 23·7 | 4 4·4 | 0 24·2 | 10 10·7 | 9 11·3 |
| Aug. 0 | 6 13·1 | 6 21·4 | 11 24·9 | 7 22·1 | 4 6·0 | 0 24·7 | 10 10·3 | 9 9·7 |
| Sept. 0 | 7 0·8 | 7 10·5 | 11 24·3 | 7 22·0 | 4 7·9 | 0 24·8 | 10 9·6 | 9 8·0 |
| Oct. 0 | 7 20·6 | 8 1·1 | 11 21·1 | 7 23·3 | 4 9·7 | 0 24·4 | 10 8·9 | 9 6·5 |
| Nov. 0 | 8 12·9 | 8 24·1 | 11 17·2 | 7 25·8 | 4 11·1 | 0 23·6 | 10 8·5 | 9 4·8 |
| Dec. 0 | 9 5·5 | 9 17·1 | 11 15·1 | 7 29·1 | 4 11·8 | 0 22·8 | 10 8·4 | 9 3·2 |
| Dec. 31 | 9 29·6 | 10 11·3 | 11 16·2 | 8 2·8 | 4 11·7 | 0 22·3 | 10 8·8 | 9 1·6 |

| Date | Week day | True Sun | Mean Moon | Moon's Anomaly | Tithi | Days from Conjunction: Mercury | Days from Conjunction: Venus |
|---|---|---|---|---|---|---|---|
| **2047** | | s ° ' | s ° ' | | | d | d |
| Jan. 0 | Mon. | 8 14 56 | 9 23 15 | 10·17 | 3·180 | 6·5 | 72·1 |
| Feb. 0 | Thur. | 9 16 30 | 11 11 43 | 13·93 | 4·672 | 37·5 | 103·1 |
| Mar. 0 | Thur. | 10 14 48 | 11 20 39 | 14·41 | 3·118 | 65·5 | 131·1 |
| Apr. 0 | Sun. | 11 15 41 | 1 9 7 | 18·16 | 4·610 | 96·5 | 162·1 |
| May 0 | Tues. | 0 15 5 | 2 14 24 | 20·82 | 5·087 | 10·7 | 192·1 |
| June 0 | Fri. | 1 15 0 | 4 2 52 | 24·57 | 6·580 | 41·7 | 223·1 |
| July 0 | Sun. | 2 13 40 | 5 8 10 | 27·24 | 7·057 | 71·7 | 253·1 |
| Aug. 0 | Wed. | 3 13 14 | 6 26 38 | 0·99 | 8·550 | 102·7 | 284·1 |
| Sept. 0 | Sat. | 4 13 1 | 8 15 6 | 4·74 | 10·042 | 17·8 | 315·1 |
| Oct. 0 | Mon. | 5 12 15 | 9 20 23 | 7·40 | 10·519 | 47·8 | 345·1 |
| Nov. 0 | Thur. | 6 12 58 | 11 8 51 | 11·15 | 12·012 | 78·8 | 376·1 |
| Dec. 0 | Sat. | 7 13 9 | 0 14 9 | 13·82 | 12·489 | 108·8 | 406·1 |
| **2048** | | | | | | | |
| Jan. 0 | Tues. | 8 14 40 | 2 2 37 | 17·57 | 13·982 | 23·9 | 437·1 |
| Feb. 0 | Fri. | 9 16 14 | 3 21 5 | 21·32 | 15·474 | 54·9 | 468·1 |
| Mar. 0 | Sat. | 10 15 32 | 4 13 12 | 22·89 | 14·935 | 83·9 | 497·1 |
| Apr. 0 | Tues. | 11 16 25 | 6 1 40 | 26·64 | 16·428 | 114·9 | 528·1 |
| May 0 | Thur. | 0 15 48 | 7 6 57 | 29·31 | 16·905 | 29·0 | 558·1 |
| June 0 | Sun. | 1 15 42 | 8 25 25 | 3·06 | 18·398 | 60·0 | 5·2 |
| July 0 | Tues. | 2 14 22 | 10 0 43 | 5·72 | 18·875 | 90·0 | 35·2 |
| Aug. 0 | Fri. | 3 13 57 | 11 19 11 | 9·47 | 20·367 | 5·2 | 66·2 |
| Sept. 0 | Mon. | 4 13 45 | 1 7 39 | 13·22 | 21·860 | 36·2 | 97·2 |
| Oct. 0 | Wed. | 5 12 59 | 2 12 56 | 15·88 | 22·337 | 66·2 | 127·2 |
| Nov. 0 | Sat. | 6 13 42 | 4 1 24 | 19·64 | 23·830 | 97·2 | 158·2 |
| Dec. 0 | Mon. | 7 13 54 | 5 6 42 | 22·30 | 24·307 | 11·3 | 188·2 |
| **2049** | | | | | | | |
| Jan. 0 | Thur. | 8 15 26 | 6 25 10 | 26·05 | 25·800 | 42·3 | 219·2 |
| Feb. 0 | Sun. | 9 17 0 | 8 13 38 | 29·80 | 27·292 | 73·3 | 250·2 |
| Mar. 0 | Sun. | 10 15 17 | 8 22 34 | 0·29 | 25·737 | 101·3 | 278·2 |
| Apr. 0 | Wed. | 11 16 10 | 10 11 2 | 4·04 | 27·230 | 16·4 | 309·2 |
| May 0 | Fri. | 0 15 33 | 11 16 19 | 6·70 | 27·707 | 46·4 | 339·2 |
| June 0 | Mon. | 1 15 28 | 1 4 47 | 10·45 | 29·200 | 77·4 | 370·2 |
| July 0 | Wed. | 2 14 7 | 2 10 5 | 13·11 | 29·677 | 107·4 | 400·2 |
| Aug. 0 | Sat. | 3 13 42 | 3 28 33 | 16·86 | 1·169 | 22·5 | 431·2 |
| Sept. 0 | Tues. | 4 13 30 | 5 17 1 | 20·62 | 2·662 | 53·5 | 462·2 |
| Oct. 0 | Thur. | 5 12 44 | 6 22 18 | 23·28 | 3·139 | 83·5 | 492·2 |
| Nov. 0 | Sun. | 6 13 27 | 8 10 46 | 27·03 | 4·632 | 114·5 | 523·2 |
| Dec. 0 | Tues. | 7 13 39 | 9 16 4 | 29·69 | 5·109 | 28·6 | 553·2 |
| **2050** | | | | | | | |
| Jan. 0 | Fri. | 8 15 10 | 11 4 32 | 3·44 | 6·601 | 59·6 | 0·3 |
| Feb. 0 | Mon. | 9 16 44 | 0 23 0 | 7·19 | 8·094 | 90·6 | 31·3 |
| Mar. 0 | Mon. | 10 15 2 | 1 1 56 | 7·68 | 6·539 | 2·8 | 59·3 |
| Apr. 0 | Thur. | 11 15 55 | 2 20 24 | 11·43 | 8·032 | 33·8 | 90·3 |
| May 0 | Sat. | 0 15 18 | 3 25 42 | 14·09 | 8·509 | 63·8 | 120·3 |
| June 0 | Tues. | 1 15 13 | 5 14 10 | 17·84 | 10·002 | 94·8 | 151·3 |
| July 0 | Thur. | 2 13 53 | 6 19 27 | 20·51 | 10·479 | 8·9 | 181·3 |
| Aug. 0 | Sun. | 3 13 28 | 8 7 55 | 24·26 | 11·971 | 39·9 | 212·3 |
| Sept. 0 | Wed. | 4 13 15 | 9 26 23 | 28·01 | 13·464 | 70·9 | 243·3 |
| Oct. 0 | Fri. | 5 12 28 | 11 1 41 | 0·67 | 13·941 | 100·9 | 273·3 |
| Nov. 0 | Mon. | 6 13 11 | 0 20 9 | 4·42 | 15·434 | 16·0 | 304·3 |
| Dec. 0 | Wed. | 7 13 23 | 1 25 26 | 7·09 | 15·911 | 46·0 | 334·3 |

| Date | Mars | Mars on 15th | Jupiter | Saturn | Herschel | Neptune | Pluto | Rahu |
|---|---|---|---|---|---|---|---|---|
| **2047** | s ° | s ° | s ° | s ° | s ° | s ° | s ° | s ° |
| Jan. 0 | 9 29·6 | 10 11·3 | 11 16·2 | 8 2·8 | 4 11·7 | 0 22·3 | 10 8·8 | 9 1·6 |
| Feb. 0 | 10 23·6 | 11 5·3 | 11 20·3 | 8 6·1 | 4 10·7 | 0 22·0 | 10 9·6 | 8 29·9 |
| Mar. 0 | 11 15·3 | 11 26·6 | 11 25·8 | 8 8·4 | 4 9·6 | 0 22·4 | 10 10·2 | 8 28·5 |
| Apr. 0 | 0 8·5 | 0 19·5 | 0 2·8 | 8 9·8 | 4 8·3 | 0 23·1 | 10 11·0 | 8 26·8 |
| May 0 | 1 0·4 | 1 11·0 | 0 10·0 | 8 9·5 | 4 7·8 | 0 24·3 | 10 11·6 | 8 25·2 |
| June 0 | 1 22·2 | 2 2·5 | 0 17·3 | 8 7·9 | 4 7·7 | 0 25·5 | 10 11·9 | 8 23·6 |
| July 0 | 2 12·9 | 2 22·5 | 0 23·5 | 8 5·7 | 4 8·9 | 0 26·5 | 10 11·9 | 8 22·0 |
| Aug. 0 | 3 3·2 | 3 12·9 | 0 28·5 | 8 3·9 | 4 10·5 | 0 27·0 | 10 11·5 | 8 20·4 |
| Sept. 0 | 3 23·2 | 4 2·7 | 1 1·5 | 8 3·2 | 4 12·4 | 0 27·1 | 10 10·8 | 8 18·7 |
| Oct. 0 | 4 12·1 | 4 21·4 | 1 1·5 | 8 4·0 | 4 14·2 | 0 26·7 | 10 10·1 | 8 17·1 |
| Nov. 0 | 5 1·4 | 5 10·4 | 0 28·6 | 8 6·2 | 4 15·7 | 0 25·9 | 10 9·7 | 8 15·5 |
| Dec. 0 | 5 19·6 | 5 28·4 | 0 24·6 | 8 9·3 | 4 16·5 | 0 25·2 | 10 9·6 | 8 13·9 |
| **2048** | | | | | | | | |
| Jan. 0 | 6 7·7 | 6 16·1 | 0 22·0 | 8 12·9 | 4 16·5 | 0 24·5 | 10 10·0 | 8 12·2 |
| Feb. 0 | 6 24·8 | 7 2·4 | 0 22·8 | 8 16·4 | 4 15·7 | 0 24·3 | 10 10·9 | 8 10·6 |
| Mar. 0 | 7 9·0 | 7 15·2 | 0 25·6 | 8 19·0 | 4 14·5 | 0 24·7 | 10 11·4 | 8 9·1 |
| Apr. 0 | 7 20·6 | 7 23·8 | 1 0·9 | 8 20·8 | 4 13·2 | 0 25·4 | 10 12·2 | 8 7·5 |
| May 0 | 7 24·8 | 7 23·2 | 1 7·4 | 8 21·1 | 4 12·5 | 0 26·4 | 10 12·8 | 8 5·9 |
| June 0 | 7 18·8 | 7 13·7 | 1 14·5 | 8 20·0 | 4 12·6 | 0 27·6 | 10 13·1 | 8 4·2 |
| July 0 | 7 10·2 | 7 10·0 | 1 21·5 | 8 18·0 | 4 13·5 | 0 28·6 | 10 13·1 | 8 2·7 |
| Aug. 0 | 7 12·7 | 7 17·7 | 1 28·0 | 8 15·9 | 4 15·0 | 0 29·1 | 10 12·7 | 8 1·0 |
| Sept. 0 | 7 25·0 | 8 3·3 | 2 3·2 | 8 14·6 | 4 16·9 | 0 29·3 | 10 12·0 | 7 29·4 |
| Oct. 0 | 8 12·5 | 8 22·4 | 2 6·4 | 8 14·9 | 4 18·7 | 0 28·9 | 10 11·3 | 7 27·8 |
| Nov. 0 | 9 3·4 | 9 14·2 | 2 6·8 | 8 16·5 | 4 20·3 | 0 28·2 | 10 9·9 | 7 26·1 |
| Dec. 0 | 9 25·1 | 10 6·4 | 2 4·4 | 8 19·4 | 4 21·2 | 0 27·4 | 10 9·8 | 7 24·5 |
| **2049** | | | | | | | | |
| Jan. 0 | 10 18·3 | 10 29·6 | 2 0·3 | 8 22·9 | 4 21·4 | 0 26·7 | 10 11·2 | 7 22·9 |
| Feb. 0 | 11 11·5 | 11 22·5 | 1 27·3 | 8 26·5 | 4 20·5 | 0 26·5 | 10 12·1 | 7 21·3 |
| Mar. 0 | 0 1·9 | 0 12·7 | 1 27·2 | 8 29·3 | 4 19·4 | 0 26·8 | 10 12·6 | 7 19·7 |
| Apr. 0 | 0 24·1 | 1 4·6 | 1 29·9 | 9 1·7 | 4 18·1 | 0 27·5 | 10 13·4 | 7 18·1 |
| May 0 | 1 14·9 | 1 25·1 | 2 4·6 | 9 2·6 | 4 17·3 | 0 28·6 | 10 14·0 | 7 16·5 |
| June 0 | 2 5·8 | 2 15·9 | 2 10·9 | 9 2·0 | 4 17·3 | 0 29·8 | 10 14·3 | 7 14·9 |
| July 0 | 2 25·7 | 3 5·4 | 2 17·5 | 9 0·2 | 4 18·1 | 1 0·8 | 10 14·3 | 7 13·3 |
| Aug. 0 | 3 15·7 | 3 25·3 | 2 24·5 | 8 28·0 | 4 19·6 | 1 1·4 | 10 13·9 | 7 11·6 |
| Sept. 0 | 4 5·5 | 4 15·1 | 3 0·9 | 8 26·4 | 4 21·4 | 1 1·5 | 10 13·2 | 7 10·0 |
| Oct. 0 | 4 24·6 | 5 4·0 | 3 6·0 | 8 26·0 | 4 23·3 | 1 1·2 | 10 12·5 | 7 8·4 |
| Nov. 0 | 5 14·2 | 5 23·7 | 3 9·4 | 8 27·2 | 4 24·9 | 1 0·5 | 10 12·1 | 7 6·7 |
| Dec. 0 | 6 3·2 | 6 12·8 | 3 10·0 | 8 29·6 | 4 25·9 | 0 29·7 | 10 12·0 | 7 5·2 |
| **2050** | | | | | | | | |
| Jan. 0 | 6 22·8 | 7 2·4 | 3 7·7 | 9 2·9 | 4 26·1 | 0 29·0 | 10 12·4 | 7 3·5 |
| Feb. 0 | 7 12·4 | 7 21·7 | 3 3·7 | 9 6·5 | 4 25·4 | 0 28·8 | 10 13·4 | 7 1·9 |
| Mar. 0 | 7 29·7 | 8 8·8 | 3 0·9 | 9 9·6 | 4 24·4 | 0 29·0 | 10 14·5 | 7 0·4 |
| Apr. 0 | 8 18·4 | 8 26·9 | 3 0·2 | 9 12·4 | 4 23·2 | 0 29·7 | 10 15·3 | 6 28·7 |
| May 0 | 9 5·1 | 9 12·6 | 3 2·3 | 9 13·8 | 4 22·2 | 1 0·7 | 10 15·9 | 6 27·2 |
| June 0 | 9 19·8 | 9 24·8 | 3 6·9 | 9 13·9 | 4 22·2 | 1 1·9 | 10 16·2 | 6 25·5 |
| July 0 | 9 28·1 | 9 28·7 | 3 12·6 | 9 12·6 | 4 22·7 | 1 2·9 | 10 16·2 | 6 23·9 |
| Aug. 0 | 9 26·5 | 9 22·7 | 3 19·3 | 9 10·3 | 4 24·2 | 1 3·5 | 10 15·8 | 6 22·3 |
| Sept. 0 | 9 19·5 | 9 19·0 | 3 26·0 | 9 8·3 | 4 25·9 | 1 3·7 | 10 15·1 | 6 20·6 |
| Oct. 0 | 9 21·4 | 9 26·3 | 4 2·1 | 9 7·4 | 4 27·8 | 1 3·4 | 10 14·4 | 6 19·0 |
| Nov. 0 | 10 3·4 | 10 11·5 | 4 7·5 | 9 8·0 | 4 29·5 | 1 2·7 | 10 14·0 | 6 17·4 |
| Dec. 0 | 10 20·2 | 10 29·5 | 4 10·7 | 9 10·0 | 5 0·6 | 1 1·9 | 10 13·9 | 6 15·8 |

# AYANAMSA

The longitudes of planets given in this ephemeris are *Nirayana* or Sidereal. In order to obtain the corresponding Tropical or *Sayana* longitude of the planet, the amount of *ayanāṁśa* for the year is to be added to the nirayana longitude. The table below gives the values of ayanamsa (mean ayanamsa for Jan 0) for the years 1950 to 2051 A.D.

| Year | Ayanamsa | Year | Ayanamsa | Year | Ayanamsa |
|---|---|---|---|---|---|
| 1950 | 23° 09'.5 | 1984 | 23° 38'.0 | 2018 | 24° 06'.5 |
| 51 | 23 10·4 | 85 | 23 38·8 | 19 | 24 07·3 |
| 52 | 23 11·2 | 86 | 23 39·7 | 20 | 24 08·2 |
| 53 | 23 12·0 | 87 | 23 40·5 | 21 | 24 09·0 |
| 54 | 23 12·9 | 88 | 23 41·4 | 22 | 24 09·8 |
| 55 | 23 13·7 | 89 | 23 42·2 | 23 | 24 10·7 |
| 56 | 23 14·5 | 90 | 23 43·0 | 24 | 24 11·5 |
| 57 | 23 15·4 | 91 | 23 43·9 | 25 | 24 12·4 |
| 58 | 23 16·2 | 92 | 23 44·7 | 26 | 24 13·2 |
| 59 | 23 17·1 | 93 | 23 45·5 | 27 | 24 14·0 |
| 60 | 23 17·9 | 94 | 23 46·4 | 28 | 24 14·9 |
| 1961 | 23 18·7 | 1995 | 23 47·2 | 2029 | 24 15·7 |
| 62 | 23 19·6 | 96 | 23 48·1 | 30 | 24 16·6 |
| 63 | 23 20·4 | 97 | 23 48·9 | 31 | 24 17·4 |
| 64 | 23 21·2 | 98 | 23 49·7 | 32 | 24 18·2 |
| 65 | 23 22·1 | 1999 | 23 50·6 | 33 | 24 19·1 |
| 66 | 23 22·9 | 2000 | 23 51·4 | 34 | 24 19·9 |
| 67 | 23 23·8 | 01 | 23 52·3 | 35 | 24 20·7 |
| 68 | 23 24·6 | 02 | 23 53·1 | 36 | 24 21·6 |
| 69 | 23 25·4 | 03 | 23 53·9 | 37 | 24 22·4 |
| 70 | 23 26·3 | 04 | 23 54·8 | 38 | 24 23·3 |
| 71 | 23 27·1 | 05 | 23 55·6 | 39 | 24 24·1 |
| 72 | 23 27·9 | 06 | 23 56·4 | 40 | 24 24·9 |
| 1973 | 23 28·8 | 2007 | 23 57·3 | 2041 | 24 25·8 |
| 74 | 23 29·6 | 08 | 23 58·1 | 42 | 24 26·6 |
| 75 | 23 30·5 | 09 | 23 59·0 | 43 | 24 27·4 |
| 76 | 23 31·3 | 10 | 23 59·8 | 44 | 24 28·3 |
| 77 | 23 32·1 | 11 | 24 00·6 | 45 | 24 29·1 |
| 78 | 23 33·0 | 12 | 24 01·5 | 46 | 24 30·0 |
| 79 | 23 33·8 | 13 | 24 02·3 | 47 | 24 30·8 |
| 80 | 23 34·7 | 14 | 24 03·1 | 48 | 24 31·6 |
| 81 | 23 35·5 | 15 | 24 04·0 | 49 | 24 32·5 |
| 82 | 23 36·3 | 16 | 24 04·8 | 50 | 24 33·3 |
| 1983 | 23 37·2 | 2017 | 24 05·7 | 2051 | 24 34·2 |

## Ayanamsa for some other epochs

| A.D. | ° | ′ | A.D. | ° | ′ | A.D. | ° | ′ | A.D. | ° | ′ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 285 | 0 | 00 | 700 | 5 | 45 | 1200 | 12 | 42 | 1700 | 19 | 40 |
| 300 | 0 | 12 | 800 | 7 | 09 | 1300 | 14 | 06 | 1800 | 21 | 04 |
| 400 | 1 | 36 | 900 | 8 | 32 | 1400 | 15 | 29 | 1900 | 22 | 28 |
| 500 | 2 | 59 | 1000 | 9 | 55 | 1500 | 16 | 53 | 1938 | 23 | 00 |
| 600 | 4 | 22 | 1100 | 11 | 19 | 1600 | 18 | 17 | 2010 | 24 | 00 |

*N.B.* **Motion of ayanamsa for 10 yrs.: 8′·38; for 100 yrs.: 1° 23′·8**

## WEEK DAY

The day of week for any day of the month may be obtained from the week-day for the zero-date of that month.

| Week-day on Zero-date | Week day on other dates | | | | | | |
|---|---|---|---|---|---|---|---|
| Sun. | Mon. | Tue. | Wed. | Thu. | Fri. | Sat. | Sun. |
| Mon. | Tue. | Wed. | Thu. | Fri. | Sat. | Sun. | Mon. |
| Tues. | Wed. | Thu. | Fri. | Sat. | Sun. | Mon. | Tue. |
| Wed. | Thu. | Fri. | Sat. | Sun. | Mon. | Tue. | Wed. |
| Thur. | Fri | Sat. | Sun. | Mon. | Tue. | Wed. | Thu. |
| Fri. | Sat. | Sun. | Mon. | Tue. | Wed. | Thu. | Fri. |
| Sat. | Sun. | Mon. | Tue. | Wed. | Thu. | Fri. | Sat. |
| Day of month | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | 29 | 30 | 31 | | | | |

**Note:** The days of week recur regularly after every 28 years in the period from 1st March 1900 to 28th February 2100 A. D.

# LONGITUDE OF THE SUN

The longitude of the Sun for any day of the month may be obtained by *adding* the figure from the following table for the date of the month in question to the longitude given for the zero-date of that month. The longitude thus obtained is nirayana and true for 5-30 A.M. I. S. T. or 0*h* Greenwich mid-night.

| Date | Jan. | | Feb. | | Mar. | | Apr. | | May | | June | | July | | Aug. | | Sept. | | Oct. | | Nov. | | Dec. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ | ° | ′ |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 59 | 0 | 58 | 0 | 58 | 0 | 57 | 0 | 58 | 0 | 58 | 0 | 59 | 1 | 0 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 2 | 0 | 1 | 58 | 1 | 56 | 1 | 55 | 1 | 54 | 1 | 55 | 1 | 56 | 1 | 58 | 2 | 0 | 2 | 1 |
| 3 | 3 | 4 | 3 | 3 | 3 | 0 | 2 | 57 | 2 | 54 | 2 | 53 | 2 | 51 | 2 | 53 | 2 | 54 | 2 | 57 | 3 | 0 | 3 | 2 |
| 4 | 4 | 5 | 4 | 3 | 4 | 0 | 3 | 57 | 3 | 53 | 3 | 50 | 3 | 48 | 3 | 50 | 3 | 52 | 3 | 56 | 4 | 0 | 4 | 3 |
| 5 | 5 | 6 | 5 | 4 | 5 | 1 | 4 | 56 | 4 | 51 | 4 | 48 | 4 | 46 | 4 | 48 | 4 | 50 | 4 | 56 | 5 | 0 | 5 | 4 |
| 6 | 6 | 7 | 6 | 5 | 6 | 1 | 5 | 55 | 5 | 49 | 5 | 45 | 5 | 43 | 5 | 45 | 5 | 48 | 5 | 55 | 6 | 0 | 6 | 5 |
| 7 | 7 | 8 | 7 | 6 | 7 | 1 | 6 | 54 | 6 | 47 | 6 | 42 | 6 | 40 | 6 | 43 | 6 | 46 | 6 | 54 | 7 | 0 | 7 | 6 |
| 8 | 8 | 9 | 8 | 7 | 8 | 1 | 7 | 53 | 7 | 45 | 7 | 40 | 7 | 37 | 7 | 40 | 7 | 45 | 7 | 53 | 8 | 1 | 8 | 7 |
| 9 | 9 | 11 | 9 | 7 | 9 | 1 | 8 | 52 | 8 | 43 | 8 | 37 | 8 | 34 | 8 | 37 | 8 | 43 | 8 | 52 | 9 | 1 | 9 | 8 |
| 10 | 10 | 12 | 10 | 8 | 10 | 1 | 9 | 51 | 9 | 41 | 9 | 34 | 9 | 32 | 9 | 35 | 9 | 41 | 9 | 52 | 10 | 1 | 10 | 9 |
| 11 | 11 | 13 | 11 | 9 | 11 | 1 | 10 | 49 | 10 | 39 | 10 | 32 | 10 | 29 | 10 | 33 | 10 | 40 | 10 | 51 | 11 | 2 | 11 | 10 |
| 12 | 12 | 14 | 12 | 10 | 12 | 0 | 11 | 48 | 11 | 37 | 11 | 29 | 11 | 26 | 11 | 30 | 11 | 38 | 11 | 50 | 12 | 2 | 12 | 11 |
| 13 | 13 | 15 | 13 | 10 | 13 | 0 | 12 | 47 | 12 | 35 | 12 | 26 | 12 | 23 | 12 | 28 | 12 | 36 | 12 | 50 | 13 | 2 | 13 | 12 |
| 14 | 14 | 16 | 14 | 11 | 14 | 0 | 13 | 46 | 13 | 33 | 13 | 24 | 13 | 20 | 13 | 25 | 13 | 35 | 13 | 49 | 14 | 3 | 14 | 13 |
| 15 | 15 | 17 | 15 | 11 | 15 | 0 | 14 | 44 | 14 | 30 | 14 | 21 | 14 | 18 | 14 | 23 | 14 | 33 | 14 | 49 | 15 | 3 | 15 | 14 |
| 16 | 16 | 18 | 16 | 12 | 16 | 0 | 15 | 43 | 15 | 28 | 15 | 18 | 15 | 15 | 15 | 21 | 15 | 32 | 15 | 48 | 16 | 4 | 16 | 15 |
| 17 | 17 | 19 | 17 | 13 | 16 | 59 | 16 | 42 | 16 | 26 | 16 | 15 | 16 | 12 | 16 | 18 | 16 | 30 | 16 | 48 | 17 | 4 | 17 | 16 |
| 18 | 18 | 21 | 18 | 13 | 17 | 59 | 17 | 40 | 17 | 24 | 17 | 13 | 17 | 9 | 17 | 16 | 17 | 29 | 17 | 47 | 18 | 5 | 18 | 17 |
| 19 | 19 | 22 | 19 | 14 | 18 | 59 | 18 | 39 | 18 | 21 | 18 | 10 | 18 | 6 | 18 | 14 | 18 | 27 | 18 | 47 | 19 | 5 | 19 | 18 |
| 20 | 20 | 23 | 20 | 14 | 19 | 58 | 19 | 38 | 19 | 19 | 19 | 7 | 19 | 4 | 19 | 12 | 19 | 26 | 19 | 46 | 20 | 6 | 20 | 19 |
| 21 | 21 | 24 | 21 | 15 | 20 | 58 | 20 | 36 | 20 | 17 | 20 | 4 | 20 | 1 | 20 | 9 | 20 | 25 | 20 | 46 | 21 | 6 | 21 | 20 |
| 22 | 22 | 25 | 22 | 15 | 21 | 57 | 21 | 35 | 21 | 15 | 21 | 2 | 20 | 58 | 21 | 7 | 21 | 23 | 21 | 46 | 22 | 7 | 22 | 21 |
| 23 | 23 | 26 | 23 | 16 | 22 | 57 | 22 | 33 | 22 | 12 | 21 | 59 | 21 | 56 | 22 | 5 | 22 | 22 | 22 | 46 | 23 | 8 | 23 | 22 |
| 24 | 24 | 27 | 24 | 16 | 23 | 56 | 23 | 32 | 23 | 10 | 22 | 56 | 22 | 53 | 23 | 3 | 23 | 21 | 23 | 45 | 24 | 8 | 24 | 24 |
| 25 | 25 | 28 | 25 | 16 | 24 | 56 | 24 | 30 | 24 | 8 | 23 | 53 | 23 | 50 | 24 | 1 | 24 | 20 | 24 | 45 | 25 | 9 | 25 | 25 |
| 26 | 26 | 29 | 26 | 17 | 25 | 55 | 25 | 28 | 25 | 5 | 24 | 51 | 24 | 48 | 24 | 59 | 25 | 19 | 25 | 45 | 26 | 10 | 26 | 26 |
| 27 | 27 | 30 | 27 | 17 | 26 | 55 | 26 | 27 | 26 | 3 | 25 | 48 | 25 | 45 | 25 | 57 | 26 | 18 | 26 | 45 | 27 | 11 | 27 | 27 |
| 28 | 28 | 31 | 28 | 17 | 27 | 54 | 27 | 25 | 27 | 0 | 26 | 45 | 26 | 42 | 26 | 55 | 27 | 16 | 27 | 45 | 28 | 11 | 28 | 28 |
| 29 | 29 | 32 | 29 | 18 | 28 | 53 | 28 | 24 | 27 | 58 | 27 | 42 | 27 | 40 | 27 | 53 | 28 | 15 | 28 | 45 | 29 | 12 | 29 | 29 |
| 30 | 30 | 33 | - | | 29 | 53 | 29 | 22 | 28 | 56 | 28 | 40 | 28 | 37 | 28 | 51 | 29 | 14 | 29 | 45 | 30 | 13 | 30 | 30 |
| 31 | 31 | 34 | - | | 30 | 52 | - | | 29 | 54 | - | | 29 | 35 | 29 | 48 | - | | 30 | 44 | - | | 31 | 32 |

# LONGITUDE OF THE MOON

The true longitude of the Moon for any moment may be obtained from the mean moon by applying corrections corresponding to the Anomaly, Tithi, etc., for that moment.

## Mean Moon and Arguments

The figures for the day of the month are to be added to the values given for the zero-date of that month.

| Day of Month | Mean Moon s | ° | ′ | Moon's Anomaly | Tithi |
|---|---|---|---|---|---|
| 1 | 0 | 13 | 11 | 1·09 | 1·016 |
| 2 | 0 | 26 | 21 | 2·18 | 2·032 |
| 3 | 1 | 9 | 32 | 3·27 | 3·048 |
| 4 | 1 | 22 | 42 | 4·36 | 4·064 |
| 5 | 2 | 5 | 53 | 5·44 | 5·079 |
| 6 | 2 | 19 | 3 | 6·53 | 6·095 |
| 7 | 3 | 2 | 14 | 7·62 | 7·111 |
| 8 | 3 | 15 | 25 | 8·71 | 8·127 |
| 9 | 3 | 28 | 35 | 9·80 | 9·143 |
| 10 | 4 | 11 | 46 | 10·89 | 10·159 |
| 11 | 4 | 24 | 56 | 11·98 | 11·175 |
| 12 | 5 | 8 | 7 | 13·07 | 12·191 |
| 13 | 5 | 21 | 18 | 14·15 | 13·207 |
| 14 | 6 | 4 | 28 | 15·24 | 14·223 |
| 15 | 6 | 17 | 39 | 16·33 | 15·238 |
| 16 | 7 | 0 | 49 | 17·42 | 16·254 |
| 17 | 7 | 14 | 0 | 18·51 | 17·270 |
| 18 | 7 | 27 | 10 | 19·60 | 18·286 |
| 19 | 8 | 10 | 21 | 20·69 | 19·302 |
| 20 | 8 | 23 | 32 | 21·78 | 20·318 |
| 21 | 9 | 6 | 42 | 22·86 | 21·334 |
| 22 | 9 | 19 | 53 | 23·95 | 22·350 |
| 23 | 10 | 3 | 3 | 25·04 | 23·366 |
| 24 | 10 | 16 | 14 | 26·13 | 24·382 |
| 25 | 10 | 29 | 25 | 27·22 | 25·397 |
| 26 | 11 | 12 | 35 | 28·31 | 26·413 |
| 27 | 11 | 25 | 46 | 29·40 | 27·439 |
| 28 | 0 | 8 | 56 | 0·49 | 28·445 |
| 29 | 0 | 22 | 7 | 1·57 | 29·461 |
| 30 | 1 | 5 | 17 | 2·66 | 0·477 |
| 31 | 1 | 18 | 28 | 3·75 | 1·493 |

**Note** :—Period of both Anomaly and Tithi is 30. When the total value of the element obtained for the date exceeds the period, 30 should be deducted from it.

## Mean Moon and Arguments—*contd.*

Values to be added for the hour of the day. Here hour is measured from 5-30 A.M. I. S. T. or 0*h* G. M. T.

| Hour | Mean Moon | | | Moon's Anomaly | Tithi |
|---|---|---|---|---|---|
| | s | ° | ′ | | |
| 1 | 0 | 0 | 33 | 0·05 | 0·042 |
| 2 | 0 | 1 | 6 | 0·09 | 0·085 |
| 3 | 0 | 1 | 39 | 0·14 | 0·127 |
| 4 | 0 | 2 | 12 | 0·18 | 0·169 |
| 5 | 0 | 2 | 45 | 0·23 | 0·212 |
| 6 | 0 | 3 | 18 | 0·27 | 0·254 |
| 7 | 0 | 3 | 51 | 0·32 | 0·296 |
| 8 | 0 | 4 | 24 | 0·36 | 0·339 |
| 9 | 0 | 4 | 56 | 0·41 | 0·381 |
| 10 | 0 | 5 | 29 | 0·45 | 0·423 |
| 11 | 0 | 6 | 2 | 0·50 | 0·466 |
| 12 | 0 | 6 | 35 | 0·54 | 0·508 |
| 13 | 0 | 7 | 8 | 0·59 | 0·550 |
| 14 | 0 | 7 | 41 | 0·64 | 0·593 |
| 15 | 0 | 8 | 14 | 0·68 | 0·635 |
| 16 | 0 | 8 | 47 | 0·73 | 0·677 |
| 17 | 0 | 9 | 20 | 0·77 | 0·720 |
| 18 | 0 | 9 | 53 | 0·82 | 0·762 |
| 19 | 0 | 10 | 26 | 0·86 | 0·804 |
| 20 | 0 | 10 | 59 | 0·91 | 0·847 |
| 21 | 0 | 11 | 32 | 0·95 | 0·889 |
| 22 | 0 | 12 | 5 | 1·00 | 0·931 |
| 23 | 0 | 12 | 38 | 1·04 | 0·974 |
| 24 | 0 | 13 | 11 | 1·09 | 1·016 |
| 10 min. | | 0 | 5 | 0·01 | 0·007 |
| 20 " | | 0 | 11 | 0·02 | 0·014 |
| 30 " | | 0 | 16 | 0·02 | 0·021 |
| 40 " | | 0 | 22 | 0·03 | 0·028 |
| 50 " | | 0 | 27 | 0·04 | 0·035 |
| 60 " | | 0 | 33 | 0·05 | 0·042 |

## Argument: '2 Tithi—Anomaly'

From the values of Moon's Anomaly and Tithi for the moment, a new argument "2 Tithi – Anomaly" is to be obtained. In so doing if 2 × Tithi is found to be less than the value of Anomaly, then 30 is to be added to 2 Tithi to facilitate subtraction. When '2 $T-A$' exceeds 30, then 30 is to be deducted from it.

Daily motion of $2T-A = 0·943$.

# TRUE MOON

## Corrections to Mean Moon

### Table I

*Argument* : Moon's Anomaly

| Anomaly | Correction | Anomaly | Anomaly | Correction | Anomaly |
|---|---|---|---|---|---|
| 0·0 | +0° 00′ − | 30·0 | 3·5 | +4° 26′ − | 26·5 |
| 0·1 | 0 08 | 29·9 | 3·6 | 4 32 | 26·4 |
| 0·2 | 0 17 | 29·8 | 3·7 | 4 37 | 26·3 |
| 0·3 | 0 25 | 29·7 | 3·8 | 4 43 | 26·2 |
| 0·4 | 0 34 | 29·6 | 3·9 | 4 48 | 26·1 |
| 0·5 | 0 42 | 29·5 | 4·0 | 4 53 | 26·0 |
| 0·6 | 0 51 | 29·4 | 4·1 | 4 58 | 25·9 |
| 0·7 | 0 59 | 29·3 | 4·2 | 5 03 | 25·8 |
| 0·8 | 1 08 | 29·2 | 4·3 | 5 08 | 25·7 |
| 0·9 | 1 16 | 29·1 | 4·4 | 5 13 | 25·6 |
| 1·0 | +1 24 − | 29·0 | 4·5 | +5 18 − | 25·5 |
| 1·1 | 1 32 | 28·9 | 4·6 | 5 22 | 25·4 |
| 1·2 | 1 41 | 28·8 | 4·7 | 5 26 | 25·3 |
| 1·3 | 1 49 | 28·7 | 4·8 | 5 30 | 25·2 |
| 1·4 | 1 57 | 28·6 | 4·9 | 5 34 | 25·1 |
| 1·5 | 2 05 | 28·5 | 5·0 | 5 38 | 25·0 |
| 1·6 | 2 13 | 28·4 | 5·1 | 5 41 | 24·9 |
| 1·7 | 2 20 | 28·3 | 5·2 | 5 44 | 24·8 |
| 1·8 | 2 28 | 28·2 | 5·3 | 5 48 | 24·7 |
| 1·9 | 2 36 | 28·1 | 5·4 | 5 51 | 24·6 |
| 2·0 | +2 44 − | 28·0 | 5·5 | +5 54 − | 24·5 |
| 2·1 | 2 51 | 27·9 | 5·6 | 5 57 | 24·4 |
| 2·2 | 2 59 | 27·8 | 5·7 | 5 59 | 24·3 |
| 2·3 | 3 06 | 27·7 | 5·8 | 6 02 | 24·2 |
| 2·4 | 3 13 | 27·6 | 5·9 | 6 04 | 24·1 |
| 2·5 | 3 20 | 27·5 | 6·0 | 6 06 | 24·0 |
| 2·6 | 3 27 | 27·4 | 6·1 | 6 08 | 23·9 |
| 2·7 | 3 34 | 27·3 | 6·2 | 6 10 | 23·8 |
| 2·8 | 3 41 | 27·2 | 6·3 | 6 11 | 23·7 |
| 2·9 | 3 48 | 27·1 | 6·4 | 6 12 | 23·6 |
| 3·0 | +3 55 − | 27·0 | 6·5 | +6 14 − | 23·5 |
| 3·1 | 4 01 | 26·9 | 6·6 | 6 15 | 23·4 |
| 3·2 | 4 08 | 26·8 | 6·7 | 6 16 | 23·3 |
| 3·3 | 4 14 | 26·7 | 6·8 | 6 16 | 23·2 |
| 3·4 | 4 20 | 26·6 | 6·9 | 6 17 | 23·1 |
| 3·5 | 4 26 | 26·5 | 7·0 | 6 17 | 23·0 |
| 3·6 | 4 32 | 26·4 | 7·1 | 6 18 | 22·9 |
| 3·7 | 4 37 | 26·3 | 7·2 | 6 18 | 22·8 |
| 3·8 | 4 43 | 26·2 | 7·3 | 6 17 | 22·7 |
| 3·9 | 4 48 | 26·1 | 7·4 | 6 17 | 22·6 |
| 4·0 | +4 53 − | 26·0 | 7·5 | +6 17 − | 22·5 |

*Continued on next page*

# TRUE MOON

## Corrections to Mean Moon

### Table I—*contd.*

*Argument* : Moon's Anomaly

| Anomaly | Correction | Anomaly | Anomaly | Correction | Anomaly |
|---|---|---|---|---|---|
| 7·5 | +6° 17′ - | 22·5 | 11·0 | +4° 28′ - | 19·0 |
| 7·6 | 6 16 | 22·4 | 11·1 | 4 23 | 18·9 |
| 7·7 | 6 15 | 22·3 | 11·2 | 4 17 | 18·8 |
| 7·8 | 6 14 | 22·2 | 11·3 | 4 12 | 18·7 |
| 7·9 | 6 13 | 22·1 | 11·4 | 4 06 | 18·6 |
| 8·0 | 6 12 | 22·0 | 11·5 | 4 00 | 18·5 |
| 8·1 | 6 10 | 21·9 | 11·6 | 3 54 | 18·4 |
| 8·2 | 6 09 | 21·8 | 11·7 | 3 48 | 18·3 |
| 8·3 | 6 07 | 21·7 | 11·8 | 3 42 | 18·2 |
| 8·4 | 6 05 | 21·6 | 11·9 | 3 36 | 18·1 |
| 8·5 | +6 03 - | 21·5 | 12·0 | +3 30 - | 18·0 |
| 8·6 | 6 01 | 21·4 | 12·1 | 3 24 | 17·9 |
| 8·7 | 5 59 | 21·3 | 12·2 | 3 18 | 17·8 |
| 8·8 | 5 56 | 21·2 | 12·3 | 3 11 | 17·7 |
| 8·9 | 5 54 | 21·1 | 12·4 | 3 05 | 17·6 |
| 9·0 | 5 51 | 21·0 | 12·5 | 2 58 | 17·5 |
| 9·1 | 5 48 | 20·9 | 12·6 | 2 51 | 17·4 |
| 9·2 | 5 45 | 20·8 | 12·7 | 2 45 | 17·3 |
| 9·3 | 5 42 | 20·7 | 12·8 | 2 48 | 17·2 |
| 9·4 | 5 39 | 20·6 | 12·9 | 2 31 | 17·1 |
| 9·5 | +5 35 - | 20·5 | 13·0 | +2 24 - | 17·0 |
| 9·6 | 5 31 | 20·4 | 13·1 | 2 18 | 16·9 |
| 9·7 | 5 28 | 20·3 | 13·2 | 2 11 | 16·8 |
| 9·8 | 5 24 | 20·2 | 13·3 | 2 04 | 16·7 |
| 9·9 | 5 20 | 20·1 | 13·4 | 1 57 | 16·6 |
| 10·0 | 5 16 | 20·0 | 13·5 | 1 50 | 16·5 |
| 10·1 | 5 11 | 19·9 | 13·6 | 1 42 | 16·4 |
| 10·2 | 5 07 | 19·8 | 13·7 | 1 35 | 16·3 |
| 10·3 | 5 02 | 19·7 | 13·8 | 1 28 | 16·2 |
| 10·4 | 4 58 | 19·6 | 13·9 | 1 21 | 16·1 |
| 10·5 | +4 53 - | 19·5 | 14·0 | +1 14 - | 16·0 |
| 10·6 | 4 48 | 19·4 | 14·1 | 1 06 | 15·9 |
| 10·7 | 4 44 | 19·3 | 14·2 | 0 59 | 15·8 |
| 10·8 | 4 39 | 19·2 | 14·3 | 0 52 | 15·7 |
| 10·9 | 4 33 | 19·1 | 14·4 | 0 44 | 15·6 |
| 11·0 | 4 28 | 19·0 | 14·5 | 0 37 | 15·5 |
| 11·1 | 4 23 | 18·9 | 14·6 | 0 29 | 15·4 |
| 11·2 | 4 17 | 18·8 | 14·7 | 0 22 | 15·3 |
| 11·3 | 4 12 | 18·7 | 14·8 | 0 15 | 15·2 |
| 11·4 | 4 06 | 18·6 | 14·9 | 0 07 | 15·1 |
| 11·5 | +4 00 - | 18·5 | 15·0 | +0 00 - | 15·0 |

# TRUE MOON

## Corrections to Mean Moon

### Table II

Arg. : Tithi

| Tithi | Correction | Tithi |
|---|---|---|
| 0·0 | +0° 00′− | 30·0 |
| 0·5 | 08 | 29·5 |
| 1·0 | 16 | 29·0 |
| 1·5 | 23 | 28·5 |
| 2·0 | +0 29− | 28·0 |
| 2·5 | 33 | 27·5 |
| 3·0 | 36 | 27·0 |
| 3·5 | 38 | 26·5 |
| 4·0 | +0 38− | 26·0 |
| 4·5 | 36 | 25·5 |
| 5·0 | 32 | 25·0 |
| 5·5 | 27 | 24·5 |
| 6·0 | +0 21− | 24·0 |
| 6·5 | +0 14− | 23·5 |
| 7·0 | +0 06− | 23·0 |
| 7·5 | −0 02+ | 22·5 |
| 8·0 | −0 10+ | 22·0 |
| 8·5 | 18 | 21·5 |
| 9·0 | 25 | 21·0 |
| 9·5 | 31 | 20·5 |
| 10·0 | −0 36+ | 20·0 |
| 10·5 | 39 | 19·5 |
| 11·0 | 41 | 19·0 |
| 11·5 | 41 | 18·5 |
| 12·0 | −0 39+ | 18·0 |
| 12·5 | 35 | 17·5 |
| 13·0 | 30 | 17·0 |
| 13·5 | 24 | 16·5 |
| 14·0 | −0 17+ | 16·0 |
| 14·5 | 09 | 15·5 |
| 15·0 | −0 00+ | 15·0 |

### Table III

Arg. : 2 Tithi − Anomaly

| Arg. | Correction | Arg. |
|---|---|---|
| 0·0 | +0° 00′− | 30·0 |
| 0·5 | 0 08 | 29·5 |
| 1·0 | 0 16 | 29·0 |
| 1·5 | 0 24 | 28·5 |
| 2·0 | 0 31 | 28·0 |
| 2·5 | 0 38 | 27·5 |
| 3·0 | 0 45 | 27·0 |
| 3·5 | 0 52 | 26·5 |
| 4·0 | +0 57− | 26·0 |
| 4·5 | 1 02 | 25·5 |
| 5·0 | 1 06 | 25·0 |
| 5·5 | 1 10 | 24·5 |
| 6·0 | 1 13 | 24·0 |
| 6·5 | 1 15 | 23·5 |
| 7·0 | 1 16 | 23·0 |
| 7·5 | 1 16 | 22·5 |
| 8·0 | +1 16− | 22·0 |
| 8·5 | 1 15 | 21·5 |
| 9·0 | 1 12 | 21·0 |
| 9·5 | 1 09 | 20·5 |
| 10·0 | 1 05 | 20·0 |
| 10·5 | 1 01 | 19·5 |
| 11·0 | 0 56 | 19·0 |
| 11·5 | 0 51 | 18·5 |
| 12·0 | +0 44− | 18·0 |
| 12·5 | 0 38 | 17·5 |
| 13·0 | 0 31 | 17·0 |
| 13·5 | 0 23 | 16·5 |
| 14·0 | 0 16 | 16·0 |
| 14·5 | 0 08 | 15·5 |
| 15·0 | +0 00− | 15·0 |

*N.B.*: If 2×Tithi is less than the Moon's anomaly, then 30 is to be added to 2*T*. If '2 Tithi—Anomaly' is greater than 30, then 30 is to be subtracted from it.

# TRUE MOON

## Corrections to Mean Moon

### Table IV

Correction according to date

| Date | | Correction |
|---|---|---|
| Jan. | 0 | + 1′ |
| | 10 | − 1 |
| | 20 | 3 |
| Feb. | 0 | 5 |
| | 10 | 7 |
| | 20 | 8 |
| Mar. | 0 | − 9 |
| | 10 | 10 |
| | 20 | 11 |
| Apr. | 0 | 11 |
| | 10 | 11 |
| | 20 | 11 |
| May | 0 | − 10 |
| | 10 | 9 |
| | 20 | 8 |
| June | 0 | 6 |
| | 10 | 5 |
| | 20 | 3 |
| July | 0 | − 1 |
| | 10 | + 1 |
| | 20 | 3 |
| Aug. | 0 | 5 |
| | 10 | 6 |
| | 20 | 8 |
| Sept. | 0 | + 9 |
| | 10 | 10 |
| | 20 | 11 |
| Oct. | 0 | 11 |
| | 10 | 11 |
| | 20 | 11 |
| Nov. | 0 | + 10 |
| | 10 | 9 |
| | 20 | 8 |
| Dec. | 0 | 6 |
| | 10 | 5 |
| | 20 | 3 |
| | 31 | + 1 |

### Table V

Corr. according to 'Moon-Rahu

| Moon - Rahu | | Correction |
|---|---|---|
| s | ° | ′ |
| 0 | 0 | − 0 |
| 0 | 10 | 2 |
| 0 | 20 | 4 |
| 1 | 0 | 6 |
| 1 | 10 | 7 |
| 1 | 20 | 7 |
| 2 | 0 | − 6 |
| 2 | 10 | 4 |
| 2 | 20 | − 2 |
| 3 | 0 | 0 |
| 3 | 10 | + 2 |
| 3 | 20 | 4 |
| 4 | 0 | + 6 |
| 4 | 10 | 7 |
| 4 | 20 | 7 |
| 5 | 0 | 6 |
| 5 | 10 | 4 |
| 5 | 20 | + 2 |
| 6 | 0 | + 0 |
| 6 | 10 | − 2 |
| 6 | 20 | 4 |
| 7 | 0 | 6 |
| 7 | 10 | 7 |
| 7 | 20 | 7 |
| 8 | 0 | − 6 |
| 8 | 10 | 4 |
| 8 | 20 | − 2 |
| 9 | 0 | 0 |
| 9 | 10 | + 2 |
| 9 | 20 | 4 |
| 10 | 0 | + 6 |
| 10 | 10 | 7 |
| 10 | 20 | 7 |
| 11 | 0 | 6 |
| 11 | 10 | 4 |
| 11 | 20 | 2 |
| 12 | 0 | + 0 |

*N.B.*: This correction may be ignored when greater accuracy is not needed.

## Example

( The results are compared with those given in Lahiri's Indian Ephemeris abbreviated as I.E )

(A) Find the longitudes of the Sun, Moon and Rahu on the 28th April, 1971 at 5-30 A.M., I.S.T.

| | True Sun | Mean Moon | Moon's Anomaly | Tithi | Rahu |
|---|---|---|---|---|---|
| | s ° ′ | s ° ′ | | | s ° |
| (Pages 12-13) 1971 Apr. 0 | 11 16 11 | 1 6 35 | 5·57 | 4·360 | 9 27·7 |
| ( P. 54. *et seq.* ) Days 28 | 27 25 | 0 8 56 | 0·49 | 28·445 | -1·5 |
| | 12 13 36 | 1 15 31 | 6·06 | 32·805 | 9 26·2 |
| | -12 | | | -30 | (I.E. 9 26·3) |
| | 0 13 36 | | | 2·805 | |
| | (I.E. 0 13 37) | | | | |

2*T*=2×2·805=5·610+30
Anomaly 6·06
2*T*−*A*=29·550
=29·55

Mean Moon =1 15·5
Rahu =9 26·2
Moon - Rahu =3 19·3
=3s 19°

Corrections to Mean Moon ( P. 57 *et seq.* )—

| | | |
|---|---|---|
| Tab. I (Anomaly) | ... | +6° 07′ |
| Tab. II (Tithi) | ... | +0 35 |
| Tab. III (2 *T*−*A*) | ... | −0 07 |
| Tab. IV (Apr. 28) | ... | −0 10 |
| Tab. V (Moon-Rahu) | ... | +0 04 |
| Total Correction | ... | +6 29 |
| Mean Moon | ... | 1 15 31 |
| True Moon | ... | 1 22 0 (I. E. 1s 21° 54′ ) |

(B) Find the Tithi with the ending moment on the above date (28-4-71)

As the Moon is 1s 22° 0′ and the Sun 0s 13° 36′ at 5-30 a.m. on the above date, it is clear that the tithi is Chaturthi, the ending moment of which is nearly 2× (9° 36′ ) or 19*h* 12*m* after 5-30 a.m. *i.e.* h. 24-42 I.S.T. The method of calculation in this way would be exhibited later. But here the calculation is shown according to the method given on pages 62 and 63.

On 28-4-1971 the value of the argument Tithi ... = 2·805

Total correction to mean moon is +6° 29′
for which the result from Table VI = +·540
Table VII ( April 28 ) = −·145
∴True Tithi (Apr. 28) = 3·200 (elapsed)

The current Tithi at the epoch (here 5-30 a. m.) is therefore 4 *i.e.* Chaturthi and the balance decimal of Tithi is 4 − 3·200=0·800.

| | | |
|---|---|---|
| Daily motion of Tithi from Tab. VIII : | Anomaly (6·06) | 12° 22′ |
| | Tithi (2·81) | + 3 |
| | 2*T*−*A* (29·55) | +15 |
| | ∴ Daily motion | =12 40=12·7 |

The balance decimal 0·800 converted into hours using the daily motion 12°·7 from the table on p. 63 gives : for 0·80=18·1*h*
0·00= 0·00
18·10=18*h* 6*m*

Initial epoch 5 30
Ending moment of Chaturthi ... 23 36 I.S.T.
( I.E. 23 46 )

# ENDING MOMENT OF TITHI

Take the total of the corrections to Mean Moon for the moment as obtained from Tables I to V, and according to this correction take the result from Table VI and apply it to the argument 'Tithi'. Similarly the result from Table VII is also to be applied to the 'Tithi'.

Then from Table VIII take the daily motion of True Tithi according to the first three arguments for the moment.

## Table VI

| Total Corr. | Result |
|---|---|
| 1° | 0·083 |
| 2 | ·167 |
| 3 | ·250 |
| 4 | ·333 |
| 5 | ·417 |
| 6 | ·500 |
| 7 | ·583 |
| 8 | ·667 |
| 2′ | 0·003 |
| 4 | ·006 |
| 6 | ·008 |
| 8 | ·011 |
| 10 | ·014 |
| 12 | ·017 |
| 14 | ·020 |
| 16 | ·022 |
| 18 | ·025 |
| 20 | ·028 |
| 22 | ·031 |
| 24 | ·033 |
| 26 | ·036 |
| 28 | ·039 |
| 30 | ·042 |
| 32 | ·045 |
| 34 | ·047 |
| 36 | ·050 |
| 38 | ·053 |
| 40 | ·056 |
| 42 | ·058 |
| 44 | ·061 |
| 46 | ·064 |
| 48 | ·067 |
| 50 | ·069 |
| 52 | ·072 |
| 54 | ·075 |
| 56 | ·078 |
| 58 | ·080 |
| 60 | ·083 |

The result is of the same sign as that of correction.

## Table VII

| Date | Result |
|---|---|
| Jan. 0 | + 0·008 |
| 10 | - 0·019 |
| 20 | ·045 |
| 30 | ·071 |
| Feb. 9 | ·095 |
| 19 | ·116 |
| Mar. 1 | - ·133 |
| 11 | ·146 |
| 21 | ·155 |
| 31 | ·159 |
| Apr. 10 | ·158 |
| 20 | ·153 |
| 30 | ·143 |
| May 10 | - ·129 |
| 20 | ·112 |
| 30 | ·091 |
| June 9 | ·068 |
| 19 | ·044 |
| 29 | - 0·017 |
| July 9 | + 0·010 |
| 19 | ·037 |
| 29 | ·063 |
| Aug. 8 | ·087 |
| 18 | ·108 |
| 28 | ·126 |
| Sept. 7 | + ·140 |
| 17 | ·151 |
| 27 | ·158 |
| Oct. 7 | ·160 |
| 17 | ·156 |
| 27 | ·148 |
| Nov. 6 | + ·137 |
| 16 | ·121 |
| 26 | ·100 |
| Dec. 6 | ·077 |
| 16 | ·052 |
| 26 | + 0·024 |
| 36 | - 0·004 |

## Table VIII

Daily motion

| Arg. | For Anomaly | For Tithi | For $2T-A$ |
|---|---|---|---|
| 0 | 13° 43′ | +16′ | + 15′ |
| 1 | 13 38 | 13 | 14 |
| 2 | 13 28 | 7 | 13 |
| 3 | 13 14 | + 2 | 11 |
| 4 | 12 59 | - 6 | 8 |
| 5 | 12 41 | 11 | 6 |
| 6 | 12 23 | 15 | + 3 |
| 7 | 12 05 | 16 | 0 |
| 8 | 11 48 | - 15 | - 4 |
| 9 | 11 33 | 11 | 7 |
| 10 | 11 18 | - 5 | 9 |
| 11 | 11 08 | + 2 | 11 |
| 12 | 10 59 | 9 | 12 |
| 13 | 10 55 | 13 | 14 |
| 14 | 10 51 | 17 | 15 |
| 15 | 10 51 | 17 | 15 |
| 16 | 10 55 | +13 | - 14 |
| 17 | 11 00 | 9 | 12 |
| 18 | 11 09 | + 2 | 11 |
| 19 | 11 20 | - 5 | 9 |
| 20 | 11 34 | 11 | 7 |
| 21 | 11 49 | 15 | - 4 |
| 22 | 12 07 | 16 | 0 |
| 23 | 12 24 | 15 | + 3 |
| 24 | 12 43 | - 11 | + 6 |
| 25 | 13 01 | - 6 | 8 |
| 26 | 13 16 | + 2 | 11 |
| 27 | 13 30 | 7 | 13 |
| 28 | 13 39 | 13 | 14 |
| 29 | 13 43 | 16 | 15 |
| 30 | 13 43 | +16 | + 15 |

Three results are to be taken according to the values of Moon's Anomaly, Tithi and $2T-A$ for the day. The sum of these three results is the daily motion of true tithi for that day. Here true tithi means 'True Moon—True Sun'.

## Ending Moment of Tithi--*contd.*

The argument Tithi for the day as corrected by the results from Tables VI and VII may be called True Tithi for the moment. The whole number of this is the number of elapsed tithi and the next higher number is the tithi current at that time. Subtract the true Tithi from this next higher number and the decimal that remains denotes the ending moment of the tithi counted from the initial epoch ( normally 5-30 A.M. I.S.T. ).

The balance decimal portion is to be converted into hours and minutes from the following table utilising the daily motion of true tithi obtained from Table VIII taken in degrees with decimal.

### Balance Decimal converted into Hours with decimal

| Balance Decimal | DAILY MOTION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 10°·5 | 11°·0 | 11°·5 | 12°·0 | 12°·5 | 13°·0 | 13°·5 | 14°·0 | 14°·5 |
| | *h* | *h* | *h* | *h* | *h* | *h* | *h* | *h* | *h* |
| ·00 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 |
| ·05 | 1·4 | 1·3 | 1·3 | 1·2 | 1·2 | 1·1 | 1·1 | 1·0 | 1·0 |
| ·10 | 2·7 | 2·6 | 2·5 | 2·4 | 2·3 | 2·2 | 2·1 | 2·1 | 2·0 |
| ·15 | 4·1 | 3·9 | 3·8 | 3·6 | 3·5 | 3·3 | 3·2 | 3·1 | 3·0 |
| ·20 | 5·5 | 5·2 | 5·0 | 4·8 | 4·6 | 4·4 | 4·3 | 4·1 | 4·0 |
| ·25 | 6·9 | 6·5 | 6·3 | 6·0 | 5·8 | 5·5 | 5·3 | 5·1 | 5·0 |
| ·30 | 8·2 | 7·9 | 7·5 | 7·2 | 6·9 | 6·6 | 6·4 | 6·2 | 6·0 |
| ·35 | 9·6 | 9·2 | 8·8 | 8·4 | 8·1 | 7·8 | 7·5 | 7·2 | 7·0 |
| ·40 | 11·0 | 10·5 | 10·0 | 9·6 | 9·2 | 8·9 | 8·5 | 8·2 | 7·9 |
| ·45 | 12·3 | 11·8 | 11·3 | 10·8 | 10·4 | 10·0 | 9·6 | 9·3 | 8·9 |
| ·50 | 13·7 | 13·1 | 12·5 | 12·0 | 11·5 | 11·1 | 10·7 | 10·3 | 9·9 |
| ·55 | 15·1 | 14·4 | 13·8 | 13·2 | 12·7 | 12·2 | 11·7 | 11·3 | 10·9 |
| ·60 | 16·5 | 15·7 | 15·0 | 14·4 | 13·8 | 13·3 | 12·8 | 12·3 | 11·9 |
| ·65 | 17·8 | 17·0 | 16·3 | 15·6 | 15·0 | 14·4 | 13·9 | 13·4 | 12·9 |
| ·70 | 19·2 | 18·3 | 17·5 | 16·8 | 16·1 | 15·5 | 14·9 | 14·4 | 13·9 |
| ·75 | 20·6 | 19·6 | 18·8 | 18·0 | 17·3 | 16·6 | 16·0 | 15·4 | 14·9 |
| ·80 | 21·9 | 20·9 | 20·0 | 19·2 | 18·4 | 17·7 | 17·1 | 16·5 | 15·9 |
| ·85 | 23·3 | 22·3 | 21·3 | 20·4 | 19·6 | 18·8 | 18·1 | 17·5 | 16·9 |
| ·90 | 24·7 | 23·6 | 22·5 | 21·6 | 20·7 | 19·9 | 19·2 | 18·5 | 17·9 |
| ·95 | 26·1 | 24·9 | 23·8 | 22·8 | 21·9 | 21·0 | 20·3 | 19·5 | 18·9 |
| 1·00 | 27·4 | 26·2 | 25·0 | 24·0 | 23·0 | 22·2 | 21·3 | 20·6 | 19·9 |
| Var. for | | | | | | | | | |
| ·01 | 0·3 | 0·3 | 0·3 | 0·2 | 0·2 | 0·2 | 0·2 | 0·2 | 0·2 |
| ·02 | 0·6 | 0·5 | 0·5 | 0·5 | 0·5 | 0·4 | 0·4 | 0·4 | 0·4 |
| ·03 | 0·8 | 0·8 | 0·8 | 0·7 | 0·7 | 0·7 | 0·6 | 0·6 | 0·6 |
| ·04 | 1·1 | 1·0 | 1·0 | 1·0 | 0·9 | 0·9 | 0·9 | 0·8 | 0·8 |
| ·05 | 1·4 | 1·3 | 1·3 | 1·2 | 1·2 | 1·1 | 1·1 | 1·0 | 1·0 |

*Rule for Interpolation* :—While interpolating between two columns the difference of horizontal figures in the table is to be multiplied by 2 and by the decimal of the daily motion in excess of the motion as given at the top, and the result is to be subtracted from the figure of the original column.

**Note** :—The figure in the decimal portion of the hour multiplied by 6 gives the minutes of time after the hour.

*N.B.*—The balance decimal multiplied by 12 gives the balance degree of tithi.

# MERCURY

## ( Detailed Method )

Add the day of the month to the "Days from conjunction" given for the zero-date. If the sum exceeds the period, then the period is to be subtracted. This may be called $A_0$.

( The period is 115·9 days, so that 1 day$=3^{\circ}\cdot107$ )

Then take $a$, $A_1$ and $B_1$ from the following table according to date.

| Date | | $a$ | $A_1$ | $B_1$ | Date | | $a$ | $A_1$ | $B_1$ |
|---|---|---|---|---|---|---|---|---|---|
| | | d | d | | | | d | d | |
| Jan. | 0 | 65·0 | + 0·0 | 0 | June | 29 | 6·3 | − 0·1 | 15 |
| | 10 | 68·2 | − 0·1 | 0 | July | 9 | 9·4 | + 0·0 | 15 |
| | 20 | 71·4 | 0·2 | 0 | | 19 | 12·6 | 0·2 | 14 |
| | 30 | 74·5 | 0·3 | 1 | | 29 | 15·8 | 0·3 | 14 |
| Feb. | 9 | 77·7 | 0·4 | 2 | Aug. | 8 | 18·9 | 0·4 | 13 |
| | 19 | 80·9 | 0·5 | 2 | | 18 | 22·1 | 0·4 | 13 |
| Mar. | 1 | 84·1 | 0·5 | 3 | | 28 | 25·3 | 0·5 | 12 |
| | 11 | 87·2 | 0·6 | 4 | Sept. | 7 | 28·5 | 0·6 | 11 |
| | 21 | 90·4 | 0·6 | 5 | | 17 | 31·6 | 0·6 | 10 |
| | 31 | 93·6 | 0·7 | 7 | | 27 | 34·8 | 0·7 | 9 |
| Apr. | 10 | 96·8 | 0·7 | 8 | Oct | 7 | 38·0 | 0·7 | 7 |
| | 20 | 99·9 | 0·6 | 9 | | 17 | 41·2 | 0·6 | 6 |
| | 30 | 103·1 | 0·6 | 10 | | 27 | 44·3 | 0·6 | 5 |
| May | 10 | 106·3 | 0·5 | 11 | Nov. | 6 | 47·5 | 0·5 | 4 |
| | 20 | 109·4 | 0·4 | 12 | | 16 | 50·7 | 0·5 | 3 |
| | 30 | 112·6 | 0·4 | 13 | | 26 | 53·8 | 0·4 | 2 |
| June | 9 | 115·8 | 0·3 | 14 | Dec. | 6 | 57·0 | 0·3 | 1 |
| | 19 | 3·1 | 0·2 | 14 | | 16 | 60·2 | 0·2 | 0 |
| | 29 | 6·3 | − 0·1 | 15 | | 26 | 63·4 | + 0·1 | 0 |
| July | 9 | 9·4 | + 0·0 | 15 | | 36 | 66·5 | − 0·0 | 0 |

*N.B.*—Daily motion of $a$ is 0·317.

Then find $A_0+a$ and if necessary subtract the period ($A_0+a$ is the mean anomaly of Mercury in units of $3^{\circ}\cdot107$).

Find from the following table the values of $A_2$ and $B_2$ according to the value of $A_0+a$.

| $A_0+a$ | $A_2$ | $B_2$ | $A_0+a$ | $A_0+a$ | $A_2$ | $B_2$ | $A_0+a$ |
|---|---|---|---|---|---|---|---|
| | d | | | | d | | |
| 0 | + 0·0 − | 505 | 116 | 28 | + 7·5 − | 392 | 88 |
| 2 | 1·1 | 504 | 114 | 30 | 7·3 | 384 | 86 |
| 4 | 2·2 | 501 | 112 | 32 | 7·1 | 376 | 84 |
| 6 | 3·2 | 496 | 110 | 34 | 6·8 | 368 | 82 |
| 8 | 4·1 | 489 | 108 | 36 | 6·4 | 361 | 80 |
| 10 | 4·9 | 482 | 106 | 38 | 5·9 | 354 | 78 |
| 12 | 5·7 | 473 | 104 | 40 | 5·4 | 348 | 76 |
| 14 | 6·3 | 463 | 102 | 42 | 4·9 | 343 | 74 |
| 16 | 6·8 | 453 | 100 | 44 | 4·3 | 339 | 72 |
| 18 | 7·2 | 442 | 98 | 46 | 3·8 | 335 | 70 |
| 20 | 7·4 | 432 | 96 | 48 | 3·2 | 331 | 68 |
| 22 | 7·5 | 421 | 94 | 50 | 2·5 | 329 | 66 |
| 24 | 7·6 | 411 | 92 | 52 | 1·9 | 327 | 64 |
| 26 | 7·6 | 401 | 90 | 54 | 1·3 | 325 | 62 |
| 28 | 7·5 | 392 | 88 | 56 | 0·6 | 324 | 60 |
| 30 | + 7·3 − | 384 | 86 | 58 | + 0·0 − | 324 | 58 |

## Mercury ( *Detailed Method* )—*contd.*

Now find $A = A_0 + A_1 + A_2$ and $B = B_1 + B_2$

With these values of $A$ and $B$ find from the following table by double interpolation the elongation of Mercury from the Sun and apply it to the True Sun for the day to get the true longitude of Mercury.

### Elongation from the Sun

| A | B 320 | 360 | 400 | 440 | 480 | 520 | A |
|---|---|---|---|---|---|---|---|
| d | ° | ° | ° | ° | ° | ° | d |
| 0 | + 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 – | 116 |
| 2 | 2·0 | 1·8 | 1·7 | 1·6 | 1·6 | 1·5 | 114 |
| 4 | 4·0 | 3·7 | 3·5 | 3·3 | 3·1 | 2·9 | 112 |
| 6 | 6·0 | 5·6 | 5·2 | 4·9 | 4·6 | 4·3 | 110 |
| 8 | 8·0 | 7·5 | 7·0 | 6·5 | 6·1 | 5·7 | 108 |
| 10 | 10·0 | 9·3 | 8·7 | 8·1 | 7·5 | 7·0 | 106 |
| 12 | +11·9 | 11·1 | 10·4 | 9·7 | 9·0 | 8·4 – | 104 |
| 14 | 13·7 | 12·8 | 12·0 | 11·2 | 10·4 | 9·6 | 102 |
| 16 | 15·5 | 14·5 | 13·5 | 12·6 | 11·7 | 10·9 | 100 |
| 18 | 17·2 | 16·1 | 15·0 | 14·0 | 13·0 | 12·1 | 98 |
| 20 | 19·0 | 17·7 | 16·5 | 15·3 | 14·2 | 13·2 | 96 |
| 22 | 20·7 | 19·2 | 17·8 | 16·5 | 15·3 | 14·2 | 94 |
| 24 | +22·3 | 20·7 | 19·1 | 17·6 | 16·3 | 15·1 – | 92 |
| 26 | 23·7 | 22·0 | 20·3 | 18·6 | 17·2 | 15·9 | 90 |
| 28 | 25·0 | 23·1 | 21·2 | 19·5 | 18·0 | 16·6 | 88 |
| 30 | 26·1 | 24·0 | 22·0 | 20·2 | 18·6 | 17·1 | 86 |
| 32 | 27·1 | 24·8 | 22·7 | 20·8 | 19·0 | 17·4 | 84 |
| 34 | 27·9 | 25·4 | 23·2 | 21·2 | 19·3 | 17·6 | 82 |
| 36 | +28·4 | 25·8 | 23·5 | 21·3 | 19·3 | 17·5 – | 80 |
| 38 | 28·6 | 25·8 | 23·4 | 21·2 | 19·1 | 17·2 | 78 |
| 40 | 28·4 | 25·5 | 23·0 | 20·7 | 18·6 | 16·7 | 76 |
| 42 | 27·8 | 24·8 | 22·2 | 19·9 | 17·8 | 15·9 | 74 |
| 44 | 26·7 | 23·7 | 21·0 | 18·7 | 16·6 | 14·8 | 72 |
| 46 | 25·0 | 22·0 | 19·4 | 17·1 | 15·1 | 13·5 | 70 |
| 47 | +23·9 | 20·9 | 18·4 | 16·2 | 14·3 | 12·7 – | 69 |
| 48 | 22·7 | 19·7 | 17·3 | 15·2 | 13·4 | 11·8 | 68 |
| 49 | 21·3 | 18·4 | 16·0 | 14·0 | 12·3 | 10·9 | 67 |
| 50 | 19·6 | 16·8 | 14·5 | 12·7 | 11·2 | 9·9 | 66 |
| 51 | 17·6 | 15·1 | 12·9 | 11·3 | 10·0 | 8·8 | 65 |
| 52 | 15·5 | 13·2 | 11·3 | 9·9 | 8·7 | 7·6 | 64 |
| 53 | +13·2 | 11·2 | 9·6 | 8·3 | 7·3 | 6·4 – | 63 |
| 54 | 10·7 | 9·1 | 7·8 | 6·7 | 5·9 | 5·2 | 62 |
| 55 | 8·1 | 6·9 | 5·9 | 5·1 | 4·5 | 3·9 | 61 |
| 56 | 5·4 | 4·6 | 4·0 | 3·4 | 3·0 | 2·6 | 60 |
| 57 | 2·7 | 2·3 | 2·0 | 1·7 | 1·5 | 1·3 | 59 |
| 58 | + 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 – | 58 |

*N.B.*—Period of $A$ is 115·9 days.

*Note*:—When the argument $A$ is between 0 and 58 the elongation is positive, i.e. the correction is to be added to the Sun, when between 58 and 116 it is to be subtracted.

# Elongation of Mercury (*Short Method*)

*Arg. : $A_0$ = Days from conjunction up to the given date.*

| A. | Dec. 10 | Jan. 23 | Mar. 8 | Apr. 23 | June 8 | July 25 | Sept. 10 | Oct. 26 | Dec. 10 |
|---|---|---|---|---|---|---|---|---|---|
| | (44) | (44) | (46) | (46) | (47) | (47) | (46) | (45) | |
| 0 | + 0°·2 | − 4°·4 | − 7°·1 | − 5°·7 | − 0°·2 | + 5°·2 | + 7°·0 | + 4°·6 | + 0°·2 |
| 1 | + 0·8 | − 3·6 | − 6·3 | − 4·7 | + 0·9 | + 6·2 | + 7·8 | + 5·4 | + 0·8 |
| 2 | + 1·5 | − 2·9 | − 5·5 | − 3·7 | + 2·0 | + 7·1 | + 8·7 | + 6·1 | + 1·5 |
| 3 | + 2·2 | − 2·2 | − 4·7 | − 2·7 | + 3·1 | + 8·1 | + 9·5 | + 6·8 | + 2·2 |
| 4 | + 2·9 | − 1·5 | − 3·8 | − 1·6 | + 4·2 | + 9·0 | +10·3 | + 7·5 | + 2·9 |
| 5 | + 3·6 | − 0·8 | − 2·9 | − 0·6 | + 5·3 | +10·0 | +11·1 | + 8·2 | + 3·6 |
| 6 | + 4·3 | − 0·1 | − 2·0 | + 0·5 | + 6·4 | +10·9 | +11·9 | + 8·9 | + 4·3 |
| 7 | + 5·0 | + 0·6 | − 1·0 | + 1·6 | + 7·5 | +11·8 | +12·7 | + 9·6 | + 5·0 |
| 8 | + 5·6 | + 1·3 | − 0·1 | + 2·7 | + 8·5 | +12·7 | +13·4 | +10·3 | + 5·6 |
| 9 | + 6·3 | + 2·0 | + 0·9 | + 3·7 | + 9·6 | +13·6 | +14·1 | +11·0 | + 6·3 |
| 10 | + 6·9 | + 2·7 | + 1·8 | + 4·8 | +10·6 | +14·4 | +14·8 | +11·6 | + 6·9 |
| 11 | 7·6 | 3·4 | 2·8 | 5·8 | 11·5 | 15·2 | 15·5 | 12·2 | 7·6 |
| 12 | 8·2 | 4·2 | 3·7 | 6·9 | 12·5 | 16·0 | 16·2 | 12·8 | 8·2 |
| 13 | 8·9 | 5·0 | 4·6 | 7·9 | 13·4 | 16·8 | 16·8 | 13·4 | 8·9 |
| 14 | 9·5 | 5·8 | 5·5 | 9·0 | 14·3 | 17·6 | 17·5 | 14·0 | 9·5 |
| 15 | 10·1 | 6·5 | 6·4 | 10·0 | 15·2 | 18·3 | 18·1 | 14·6 | 10·1 |
| 16 | 10·7 | 7·3 | 7·2 | 11·0 | 16·0 | 19·0 | 18·7 | 15·2 | 10·7 |
| 17 | 11·3 | 8·0 | 8·1 | 12·0 | 16·8 | 19·7 | 19·3 | 15·8 | 11·3 |
| 18 | 11·9 | 8·8 | 8·9 | 12·9 | 17·6 | 20·3 | 19·9 | 16·4 | 11·9 |
| 19 | 12·5 | 9·5 | 9·8 | 13·8 | 18·3 | 20·9 | 20·5 | 17·0 | 12·5 |
| 20 | 13·1 | 10·3 | 10·6 | 14·6 | 19·0 | 21·5 | 21·0 | 17·6 | 13·1 |
| 21 | 13·7 | 11·0 | 11·5 | 15·4 | 19·6 | 22·1 | 21·6 | 18·1 | 13·7 |
| 22 | 14·3 | 11·7 | 12·3 | 16·2 | 20·2 | 22·6 | 22·1 | 18·6 | 14·3 |
| 23 | 14·9 | 12·4 | 13·1 | 16·9 | 20·7 | 23·2 | 22·7 | 19·1 | 14·9 |
| 24 | 15·5 | 13·1 | 13·9 | 17·5 | 21·3 | 23·7 | 23·2 | 19·6 | 15·5 |
| 25 | 16·1 | 13·8 | 14·6 | 18·1 | 21·8 | 24·2 | 23·7 | 20·1 | 16·1 |
| 26 | 16·6 | 14·4 | 15·3 | 18·6 | 22·2 | 24·6 | 24·2 | 20·5 | 16·6 |
| 27 | 17·2 | 15·0 | 15·9 | 19·0 | 22·6 | 25·0 | 24·6 | 21·0 | 17·2 |
| 28 | 17·7 | 15·5 | 16·5 | 19·4 | 23·0 | 25·4 | 25·0 | 21·4 | 17·7 |
| 29 | 18·2 | 16·0 | 17·0 | 19·7 | 23·3 | 25·8 | 25·4 | 21·8 | 18·2 |
| 30 | 18·7 | 16·5 | 17·4 | 19·8 | 23·6 | 26·1 | 25·7 | 22·2 | 18·7 |
| 31 | 19·1 | 17·0 | 17·7 | 19·9 | 23·8 | 26·4 | 26·0 | 22·6 | 19·1 |
| 32 | 19·5 | 17·4 | 18·0 | 19·9 | 24·0 | 26·7 | 26·2 | 22·9 | 19·5 |
| 33 | 19·9 | 17·8 | 18·2 | 20·0 | 24·0 | 26·9 | 26·4 | 23·2 | 19·9 |
| 34 | 20·2 | 18·1 | 18·2 | 20·0 | 24·0 | 27·0 | 26·6 | 23·4 | 20·2 |
| 35 | 20·5 | 18·4 | 18·2 | 19·9 | 23·9 | 27·0 | 26·7 | 23·6 | 20·5 |
| 36 | 20·8 | 18·6 | 18·0 | 19·7 | 23·7 | 27·0 | 26·8 | 23·8 | 20·8 |
| 37 | 21·0 | 18·7 | 17·7 | 19·4 | 23·4 | 27·0 | 26·9 | 24·0 | 21·0 |
| 38 | 21·1 | 18·6 | 17·3 | 18·9 | 23·1 | 26·9 | 26·9 | 24·1 | 21·1 |
| 39 | 21·2 | 18·3 | 16·7 | 18·3 | 22·7 | 26·8 | 27·0 | 24·2 | 21·2 |
| 40 | 21·1 | 18·0 | 16·0 | 17·6 | 22·3 | 26·6 | 27·0 | 24·2 | 21·1 |
| 41 | 20·9 | 17·5 | 15·2 | 16·7 | 21·8 | 26·4 | 27·0 | 24·1 | 20·9 |
| 42 | 20·7 | 17·0 | 14·2 | 15·8 | 21·2 | 26·1 | 26·8 | 24·0 | 20·7 |
| 43 | 20·4 | 16·3 | 13·1 | 14·7 | 20·5 | 25·7 | 26·6 | 23·8 | 20·4 |
| 44 | 20·0 | 15·5 | 11·9 | 13·5 | 19·7 | 25·3 | 26·4 | 23·6 | 20·0 |
| 45 | 19·4 | 14·6 | 10·6 | 12·1 | 18·8 | 24·7 | 26·1 | 23·2 | 19·4 |
| 46 | 18·7 | 13·5 | 9·1 | 10·6 | 17·9 | 24·1 | 25·6 | 22·8 | 18·7 |
| 47 | 17·8 | 12·0 | 7·5 | 9·0 | 16·8 | 23·3 | 25·0 | 22·3 | 17·8 |
| 48 | 16·7 | 10·4 | 5·8 | 7·4 | 15·7 | 22·5 | 24·3 | 21·6 | 16·7 |
| 49 | 15·6 | 8·7 | 4·0 | 5·8 | 14·4 | 21·6 | 23·6 | 20·9 | 15·6 |
| 50 | +14·4 | + 6·8 | + 2·1 | + 4·2 | +13·0 | +20·6 | +22·8 | +20·0 | +14·4 |
| 51 | +13·1 | + 4·8 | + 0·2 | + 2·6 | +11·6 | +19·5 | +21·9 | +19·0 | +13·1 |
| 52 | +11·6 | + 2·8 | − 1·8 | + 1·0 | +10·2 | +18·4 | +20·9 | +17·9 | +11·6 |
| 53 | + 9·9 | + 0·8 | − 3·7 | − 0·7 | + 8·8 | +17·2 | +19·8 | +16·7 | + 9·9 |
| 54 | + 8·0 | − 1·3 | − 5·7 | − 2·4 | + 7·3 | +15·9 | +18·7 | +15·3 | + 8·0 |
| 55 | + 5·9 | − 3·4 | − 7·6 | − 4·1 | + 5·8 | +14·5 | +17·4 | +13·8 | + 5·9 |
| 56 | + 3·6 | − 5·5 | − 9·5 | − 5·9 | + 4·2 | +13·0 | +16·1 | +12·2 | + 3·6 |
| 57 | + 1·3 | − 7·7 | −11·3 | − 7·7 | + 2·6 | +11·4 | +14·6 | +10·5 | + 1·3 |
| 58 | − 0·9 | − 9·8 | −13·0 | − 9·5 | + 1·0 | + 9·8 | +13·0 | + 8·6 | − 0·9 |

## Elongation of Mercury ( *Short Method* ) – *contd.*

$A_0$ = Days from conjunction. Period of $A_0$ = 115·9 days.

| $A_0$ | Dec. 10 | Jan. 23 | Mar. 8 | Apr. 23 | June 8 | July 25 | Sept. 10 | Oct. 26 | Dec. 10 | $A_0$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | (44) | (44) | (46) | (46) | (47) | (47) | (46) | (45) | | |
| 58 | - 0·9 | - 9·8 | -13·0 | - 9·5 | + 1·0 | + 9·8 | +13·0 | + 8·6 | - 0·9 | 58 |
| 59 | - 2·9 | -11·9 | -14·6 | -11·3 | - 0·6 | + 8·0 | +11·3 | + 6·6 | - 2·9 | 59 |
| 60 | - 4·9 | -13·9 | -16·1 | -12·9 | - 2·3 | + 6·2 | + 9·5 | + 4·6 | - 4·9 | 60 |
| 61 | - 6·8 | -15·5 | -17·5 | -14·5 | - 4·0 | + 4·5 | + 7·7 | + 2·6 | - 6·8 | 61 |
| 62 | - 8·7 | -16·9 | -18·9 | -16·0 | - 5·7 | + 2·7 | + 5·8 | + 0·5 | - 8·7 | 62 |
| 63 | -10·5 | -18·1 | -20·1 | -17·4 | - 7·4 | + 1·0 | + 3·9 | - 1·5 | -10·5 | 63 |
| 64 | -12·2 | -19·1 | -21·3 | -18·7 | - 9·0 | - 0·7 | + 2·0 | - 3·5 | -12·2 | 64 |
| 65 | -13·6 | -20·0 | -22·3 | -19·8 | -10·6 | - 2·4 | + 0·2 | - 5·4 | -13·6 | 65 |
| 66 | -14·9 | -20·9 | -23·2 | -20·9 | -12·1 | - 4·0 | - 1·6 | - 7·3 | -14·9 | 66 |
| 67 | -16·1 | -21·7 | -24·0 | -21·9 | -13·6 | - 5·6 | - 3·3 | - 9·1 | -16·1 | 67 |
| 68 | 17·1 | 22·4 | 24·7 | 22·8 | 15·0 | 7·2 | 5·1 | 10·8 | 17·1 | 68 |
| 69 | 18·1 | 23·1 | 25·3 | 23·6 | 16·4 | 8·8 | 6·8 | 12·3 | 18·1 | 69 |
| 70 | 18·9 | 23·6 | 25·8 | 24·4 | 17·6 | 10·4 | 8·4 | 13·7 | 18·9 | 70 |
| 71 | 19·5 | 24·0 | 26·2 | 25·1 | 18·6 | 11·9 | 10·0 | 14·8 | 19·5 | 71 |
| 72 | 20·0 | 24·2 | 26·5 | 25·7 | 19·6 | 13·3 | 11·4 | 15·7 | 20·0 | 72 |
| 73 | 20·3 | 24·3 | 26·7 | 26·2 | 20·4 | 14·4 | 12·7 | 16·5 | 20·3 | 73 |
| 74 | 20·6 | 24·4 | 26·8 | 26·6 | 21·1 | 15·5 | 13·9 | 17·1 | 20·6 | 74 |
| 75 | 20·8 | 24·4 | 26·9 | 26·9 | 21·6 | 16·4 | 14·9 | 17·6 | 20·8 | 75 |
| 76 | 20·9 | 24·4 | 26·9 | 27·1 | 22·1 | 17·1 | 15·7 | 18·0 | 20·9 | 76 |
| 77 | 20·8 | 24·4 | 27·0 | 27·2 | 22·4 | 17·8 | 16·3 | 18·2 | 20·8 | 77 |
| 78 | 20·7 | 24·3 | 27·0 | 27·3 | 22·7 | 18·4 | 16·8 | 18·3 | 20·7 | 78 |
| 79 | 20·5 | 24·2 | 27·0 | 27·3 | 23·0 | 18·8 | 17·2 | 18·3 | 20·5 | 79 |
| 80 | 20·3 | 24·0 | 27·0 | 27·3 | 23·2 | 19·2 | 17·5 | 18·3 | 20·3 | 80 |
| 81 | 20·0 | 23·8 | 26·9 | 27·3 | 23·4 | 19·5 | 17·7 | 18·2 | 20·0 | 81 |
| 82 | 19·7 | 23·6 | 26·8 | 27·2 | 23·6 | 19·8 | 17·9 | 17·9 | 19·7 | 82 |
| 83 | 19·3 | 23·4 | 26·7 | 27·1 | 23·8 | 19·9 | 18·1 | 17·6 | 19·3 | 83 |
| 84 | 18·9 | 23·1 | 26·5 | 26·9 | 23·9 | 20·0 | 18·2 | 17·2 | 18·9 | 84 |
| 85 | 18·5 | 22·8 | 26·3 | 26·7 | 23·8 | 19·9 | 18·0 | 16·8 | 18·5 | 85 |
| 86 | 18·0 | 22·4 | 26·0 | 26·4 | 23·6 | 19·8 | 17·7 | 16·3 | 18·0 | 86 |
| 87 | 17·6 | 22·0 | 25·6 | 26·1 | 23·4 | 19·6 | 17·3 | 15·8 | 17·6 | 87 |
| 88 | 17·1 | 21·5 | 25·2 | 25·8 | 23·2 | 19·3 | 16·8 | 15·2 | 17·1 | 88 |
| 89 | 16·6 | 21·1 | 24·7 | 25·4 | 22·9 | 18·9 | 16·2 | 14·6 | 16·6 | 89 |
| 90 | 16·1 | 20·6 | 24·2 | 25·0 | 22·5 | 18·5 | 15·5 | 14·0 | 16·1 | 90 |
| 91 | 15·6 | 20·1 | 23·7 | 24·6 | 22·1 | 18·0 | 14·8 | 13·4 | 15·6 | 91 |
| 92 | 15·1 | 19·6 | 23·1 | 24·1 | 21·6 | 17·5 | 14·0 | 12·7 | 15·1 | 92 |
| 93 | 14·6 | 19·0 | 22·6 | 23·6 | 21·1 | 16·9 | 13·2 | 12·0 | 14·6 | 93 |
| 94 | 14·0 | 18·5 | 22·0 | 23·1 | 20·6 | 16·3 | 12·4 | 11·3 | 14·0 | 94 |
| 95 | 13·4 | 17·9 | 21·5 | 22·6 | 20·0 | 15·6 | 11·6 | 10·6 | 13·4 | 95 |
| 96 | 12·9 | 17·4 | 20·9 | 22·0 | 19·4 | 14·8 | 10·8 | 9·9 | 12·9 | 96 |
| 97 | 12·3 | 16·8 | 20·4 | 21·4 | 18·7 | 14·0 | 9·9 | 9·2 | 12·3 | 97 |
| 98 | 11·7 | 16·3 | 19·8 | 20·7 | 18·0 | 13·1 | 9·0 | 8·4 | 11·7 | 98 |
| 99 | 11·1 | 15·7 | 19·2 | 20·1 | 17·2 | 12·2 | 8·1 | 7·7 | 11·1 | 99 |
| 100 | 10·4 | 15·1 | 18·6 | 19·4 | 16·4 | 11·2 | 7·2 | 6·9 | 10·4 | 100 |
| 101 | 9·8 | 14·5 | 18·0 | 18·7 | 15·5 | 10·2 | 6·3 | 6·2 | 9·8 | 101 |
| 102 | 9·1 | 13·9 | 17·4 | 18·0 | 14·6 | 9·2 | 5·4 | 5·4 | 9·1 | 102 |
| 103 | 8·5 | 13·3 | 16·8 | 17·2 | 13·7 | 8·2 | 4·5 | 4·6 | 8·5 | 103 |
| 104 | 7·8 | 12·7 | 16·1 | 16·4 | 12·7 | 7·2 | 3·6 | 3·9 | 7·8 | 104 |
| 105 | 7·2 | 12·0 | 15·4 | 15·6 | 11·7 | 6·2 | 2·7 | 3·2 | 7·2 | 105 |
| 106 | 6·5 | 11·4 | 14·7 | 14·8 | 10·7 | 5·1 | 1·8 | 2·4 | 6·5 | 106 |
| 107 | - 5·8 | -10·7 | -14·0 | -14·0 | - 9·7 | - 4·1 | - 0·9 | - 1·7 | - 5·8 | 107 |
| 108 | - 5·1 | -10·0 | -13·3 | -13·1 | - 8·7 | - 3·0 | - 0·0 | - 0·9 | - 5·1 | 108 |
| 109 | - 4·5 | - 9·3 | -12·6 | -12·2 | - 7·7 | - 2·0 | + 0·9 | - 0·2 | - 4·5 | 109 |
| 110 | - 3·8 | - 8·6 | -11·8 | -11·3 | - 6·6 | - 0·9 | + 1·8 | + 0·5 | - 3·8 | 110 |
| 111 | - 3·1 | - 7·9 | -11·0 | -10·4 | - 5·6 | + 0·1 | + 2·7 | + 1·2 | - 3·1 | 111 |
| 112 | - 2·4 | - 7·2 | -10·2 | - 9·5 | - 4·5 | + 1·2 | + 3·6 | + 1·9 | - 2·4 | 112 |
| 113 | - 1·8 | - 6·5 | - 9·4 | - 8·6 | - 3·4 | + 2·3 | + 4·5 | + 2·6 | - 1·8 | 113 |
| 114 | - 1·1 | - 5·8 | - 8·6 | - 7·6 | - 2·3 | + 3·3 | + 5·4 | + 3·3 | - 1·1 | 114 |
| 115 | - 0·5 | - 5·0 | - 7·8 | - 6·6 | - 1·2 | + 4·3 | + 6·3 | + 4·0 | - 0·5 | 115 |
| 116 | + 0·2 | - 4·3 | - 7·0 | - 5·6 | - 0·1 | + 5·3 | + 7·1 | + 4·7 | + 0·2 | 116 |

# VENUS

The longitude of Venus is to be obtained from the argument 'Da
from conjunction' and the longitude of the Sun utilising the table belo

Let $A_0$ = Days from conjunction for the zero-date *plus* the day the month as in the case of Mercury. When the value of $A_0$ excee the period of 583·9 days, the period is to be subtracted from it. Wit this value of $A_0$ find the elongation of Venus from the following tab by double interpolation and apply it to the True Sun for the day to g the true longitude of Venus.

## Elongation of Venus from the Sun

| $A_0$ | Jan. 1 | Apr. 1 | July 1 | Oct. 1 | Jan. 1 | $A_0$ |
|---|---|---|---|---|---|---|
| d | ° | ° | ° | ° | ° | d |
| 0 | + 0·2 | − 1·2 | − 0·2 | + 1·1 | + 0·2 | 0 |
| 5 | + 1·5 | + 0·2 | + 1·1 | + 2·4 | + 1·5 | 5 |
| 10 | + 2·8 | + 1·5 | + 2·4 | + 3·7 | + 2·8 | 10 |
| 15 | 4·1 | 2·8 | 3·7 | 5·0 | 4·1 | 15 |
| 20 | 5·4 | 4·1 | 5·0 | 6·3 | 5·4 | 20 |
| 30 | 8·0 | 6·6 | 7·5 | 8·8 | 8·0 | 30 |
| 40 | 10·6 | 9·2 | 10·1 | 11·4 | 10·6 | 40 |
| 50 | 13·2 | 11·7 | 12·6 | 14·0 | 13·2 | 50 |
| 60 | 15·7 | 14·3 | 15·2 | 16·5 | 15·7 | 60 |
| 70 | 18·2 | 16·8 | 17·7 | 19·0 | 18·2 | 70 |
| 80 | 20·7 | 19·3 | 20·2 | 21·5 | 20·7 | 80 |
| 90 | 23·2 | 21·8 | 22·7 | 24·0 | 23·2 | 90 |
| 100 | 25·6 | 24·3 | 25·1 | 26·3 | 25·6 | 100 |
| 110 | 28·0 | 26·7 | 27·5 | 28·7 | 28·0 | 110 |
| 120 | 30·3 | 29·1 | 29·8 | 31·0 | 30·3 | 120 |
| 130 | +32·6 | +31·4 | +32·1 | +33·3 | +32·6 | 130 |
| 140 | 34·8 | 33·7 | 34·3 | 35·5 | 34·8 | 140 |
| 150 | 37·0 | 35·8 | 36·4 | 37·5 | 37·0 | 150 |
| 160 | 39·1 | 37·9 | 38·4 | 39·5 | 39·1 | 160 |
| 170 | 41·0 | 39·8 | 40·1 | 41·3 | 41·0 | 170 |
| 180 | 42·8 | 41·6 | 41·8 | 43·0 | 42·8 | 180 |
| 190 | 44·4 | 43·2 | 43·2 | 44·5 | 44·4 | 190 |
| 200 | 45·8 | 44·6 | 44·4 | 45·7 | 45·8 | 200 |
| 210 | 46·7 | 45·5 | 45·0 | 46·3 | 46·7 | 210 |
| 220 | 47·2 | 46·1 | 45·3 | 46·5 | 47·2 | 220 |
| 230 | 47·2 | 46·1 | 44·8 | 46·0 | 47·2 | 230 |
| 240 | +46·0 | +44·9 | +43·3 | +44·3 | +46·0 | 240 |
| 245 | 44·8 | 43·8 | 42·0 | 42·9 | 44·8 | 245 |
| 250 | 43·3 | 42·5 | 40·5 | 41·3 | 43·3 | 250 |
| 255 | 41·4 | 40·8 | 38·5 | 39·2 | 41·4 | 255 |
| 260 | 39·0 | 38·5 | 36·0 | 36·4 | 39·0 | 260 |
| 265 | 35·8 | 35·4 | 32·7 | 32·6 | 35·8 | 265 |
| 270 | 31·5 | 31·4 | 28·2 | 27·6 | 31·5 | 270 |
| 272 | 29·5 | 29·6 | 26·1 | 25·3 | 29·5 | 272 |
| 274 | 27·3 | 27·6 | 23·9 | 23·0 | 27·3 | 274 |
| 276 | 25·0 | 25·5 | 21·5 | 20·5 | 25·0 | 276 |
| 278 | 22·5 | 23·3 | 19·0 | 17·9 | 22·5 | 278 |
| 280 | 19·8 | 20·9 | 16·5 | 15·3 | 19·8 | 280 |
| 282 | 16·9 | 18·3 | 13·9 | 12·4 | 16·9 | 282 |
| 284 | +13·9 | +15·5 | +11·1 | + 9·3 | +13·9 | 284 |

# VENUS

## Elongation of Venus—*contd.*

| $A_0$ | Jan. 1 | Apr. 1 | July 1 | Oct. 1 | Jan. 1 | $A_0$ |
|---|---|---|---|---|---|---|
| d | ° | ° | ° | ° | ° | d |
| 284 | +13·9 | +15·5 | +11·1 | + 9·3 | +13·9 | 284 |
| 286 | +10·7 | +12·6 | + 8·2 | + 6·2 | +10·7 | 286 |
| 288 | + 7·4 | + 9·6 | + 5·3 | + 3·0 | + 7·4 | 288 |
| 290 | + 4·0 | + 6·4 | + 2·3 | − 0·3 | + 4·0 | 290 |
| 292 | + 0·6 | + 3·0 | − 0·8 | − 3·5 | + 0·6 | 292 |
| 294 | − 2·8 | − 0·4 | − 3·9 | − 6·6 | − 2·8 | 294 |
| 296 | − 6·2 | − 3·8 | − 6·9 | − 9·7 | − 6·2 | 296 |
| 298 | 9·5 | 7·1 | 9·8 | 12·7 | 9·5 | 298 |
| 300 | 12·7 | 10·3 | 12·6 | 15·7 | 12·7 | 300 |
| 302 | 15·7 | 13·4 | 15·3 | 18·4 | 15·7 | 302 |
| 304 | 18·6 | 16·4 | 17·9 | 20·8 | 18·6 | 304 |
| 306 | 21·4 | 19·1 | 20·4 | 23·1 | 21·4 | 306 |
| 308 | 24·0 | 21·7 | 22·8 | 25·4 | 24·0 | 308 |
| 310 | 26·5 | 24·1 | 25·0 | 27·5 | 26·5 | 310 |
| 312 | 28·7 | 26·2 | 27·1 | 29·4 | 28·7 | 312 |
| 315 | −31·6 | −29·0 | −30·0 | −32·1 | −31·6 | 315 |
| 320 | 35·6 | 33·0 | 34·0 | 35·9 | 35·6 | 320 |
| 325 | 38·8 | 36·4 | 37·2 | 39·0 | 38·8 | 325 |
| 330 | 41·4 | 39·2 | 39·7 | 41·4 | 41·4 | 330 |
| 335 | 43·3 | 41·4 | 41·6 | 43·0 | 43·3 | 335 |
| 340 | 44·7 | 43·2 | 43·1 | 44·2 | 44·7 | 340 |
| 345 | 45·7 | 44·6 | 44·2 | 45·1 | 45·7 | 345 |
| 350 | 46·4 | 45·6 | 45·0 | 45·8 | 46·4 | 350 |
| 360 | 46·8 | 46·4 | 45·6 | 46·3 | 46·8 | 360 |
| 370 | 46·7 | 46·4 | 45·6 | 46·1 | 46·7 | 370 |
| 380 | 45·9 | 45·8 | 45·0 | 45·2 | 45·9 | 380 |
| 390 | 44·8 | 44·8 | 44·0 | 44·1 | 44·8 | 390 |
| 400 | 43·3 | 43·4 | 42·6 | 42·6 | 43·3 | 400 |
| 410 | 41·6 | 41·8 | 41·0 | 40·9 | 41·6 | 410 |
| 420 | 39·7 | 40·0 | 39·3 | 39·0 | 39·7 | 420 |
| 430 | 37·7 | 38·1 | 37·3 | 37·0 | 37·7 | 430 |
| 440 | 35·6 | 36·2 | 35·3 | 34·9 | 35·6 | 440 |
| 450 | 33·4 | 34·0 | 33·1 | 32·7 | 33·4 | 450 |
| 460 | −31·1 | −31·7 | −30·9 | −30·4 | −31·1 | 460 |
| 470 | 28·7 | 29·5 | 28·7 | 28·0 | 28·7 | 470 |
| 480 | 26·2 | 27·2 | 26·4 | 25·5 | 26·2 | 480 |
| 490 | 23·8 | 24·8 | 24·0 | 23·0 | 23·8 | 490 |
| 500 | 21·3 | 22·3 | 21·5 | 20·5 | 21·3 | 500 |
| 510 | 18·8 | 19·8 | 19·0 | 18·0 | 18·8 | 510 |
| 520 | 16·3 | 17·3 | 16·5 | 15·5 | 16·3 | 520 |
| 530 | 13·8 | 14·8 | 14·0 | 13·0 | 13·8 | 530 |
| 540 | 11·2 | 12·3 | 11·5 | 10·4 | 11·2 | 540 |
| 550 | 8·6 | 9·8 | 8·9 | 7·7 | 8·6 | 550 |
| 560 | 6·0 | 7·2 | 6·3 | 5·1 | 6·0 | 560 |
| 565 | − 4·7 | − 6·0 | − 5·0 | − 3·8 | − 4·7 | 565 |
| 570 | − 3·4 | − 4·7 | − 3·7 | − 2·5 | − 3·4 | 570 |
| 575 | − 2·1 | − 3·4 | − 2·5 | − 1·2 | − 2·1 | 575 |
| 580 | − 0·8 | − 2·1 | − 1·2 | + 0·1 | − 0·8 | 580 |
| 585 | + 0·5 | − 0·9 | + 0·1 | + 1·4 | + 0·5 | 585 |

Period of $A_0$ = 583·9 days.

## Conjunctions of Mercury and Venus with Sun

The conjunctions of Mercury and Venus with the Sun occur when the value of $A_0$ i.e. Days from conjunction up to the given date of the planet in question attains the following amounts.

| Mercury | | | Venus | | |
|---|---|---|---|---|---|
| Date | Superior Conjunction d | Inferior Conjunction d | Date | Superior Conjunction d | Inferior Conjunction d |
| Dec. 10 | 115·7 | 57·6 | Jan. 1 | 583 | 292 |
| Jan. 23 | 6·1 | 53·4 | Feb. 16 | 2 | 293 |
| Mar. 8 | 8·1 | 51·1 | Apr. 1 | 4 | 294 |
| Apr. 23 | 5·5 | 52·6 | May 16 | 2 | 293 |
| June 8 | 0·2 | 58·6 | July 1 | 1 | 292 |
| July 25 | 110·9 | 63·6 | Aug. 16 | 582 | 291 |
| Sept. 10 | 108·0 | 68·1 | Oct. 1 | 580 | 290 |
| Oct. 26 | 109·3 | 62·2 | Nov. 16 | 582 | 291 |
| Dec. 10 | 115·7 | 57·6 | Jan. 1 | 583 | 292 |
| Mean conj. | 0·0 or 115·9 | 57·9 or 58·0 | Mean conj. | 0 or 584 | 292 |

### Examples of Mercury and Venus

*Example 1.* Longitude of Mercury by the detailed method.

Date : Feb. 1. 1971 (at 5-30 A.M. I.S.T)

(P.12) Days from conj. : 1971, Feb. 0 = 89·1

Day of the month = 1

$\therefore \quad A_0 = 90·1$

(P. 64) On Feb. 1 *i.e.* 2 days after Jan. 30

$a = 75·1, \quad A_1 = -0·3 \quad B_1 = 1$

$\therefore \quad A_0 + a = 165·2$

Less period... 115·9

$A_0 + a = 49·3$

(P. 64) Against the above value of 49·3 for $A_0 + a$ we get

$A_2 = +2·8, \ B_2 = 330$

$\therefore \quad A = A_0 + A_1 + A_2 = 90·1 - 0·3 + 2·8 = 92·6$

$B = \quad B_1 + B_2 = \quad 1 + 330 = 331$

With these values of $A$ and $B$ enter the table on p. 65 to find the elongation of Mercury from the Sun.

| | B=320 | B=360 | A |
|---|---|---|---|
| | 20°·7 | 19°·2 − | 94 |
| | 22·3 | 20·7 − | 92 |
| We get for A=92·6.. | 21·8 | 20·2 | |
| Now for B=331 | (−) 21°·4 | =Elongation of Mercury. | |

True longitude of Sun on 1-2-71 = 9s 18° 1′

Elongation of Mercury = (−) 21 24

∴ Long. of Mercury = 8 26 37 ( I.E. 8 26 40 )

## Examples of Mercury and Venus

*Example 2.* Longitudes of Mercury and Venus by the short method.
Date : Feb. 1, 1971 (5-30 I.S.T.)

| | Mercury | Venus |
|---|---|---|
| | d | d |
| (P. 12) Days from conjunction (1971, Feb. 0) | 89.1 | 372·3 |
| Day of the month | 1 | 1 |
| $A_0$ ... | 90·1 | 373·3 |

Now against the above values of $A_0$ find the elongations of Mercury and Venus for the above date (Feb. 1) from the tables on pages 67 and 69 respectively.

For Mercury the figures are given in the table for Jan. 23 and Mar. 8, *i.e.* at an interval of 44 days and our date Feb. 1 is 9 days after Jan. 23. Hence the ratio to be applied for horizontal interpolation is 9 : 44 = 1/5 nearly.

In the case of Venus, the figures are given for Jan. 1 and Apr. 1, *i.e.* at an interval of 3 months, and our date is one month later than Jan. 1. Hence the ratio to be applied in this case is 1 : 3 = 1/3.

**Mercury**

| $A_0$ | Jan. 23 | Mar. 8 |
|---|---|---|
| 90 | −20°·6 | −24°·2 |
| 91 | − 20·1 | − 23·7 |
| For 90·1 | ... 20·6 | 24·2 |

For Feb. 1 ... 20·6+1/5 (24·2−20·6)
=20°·6+0°·7 = (−) 21°·3

| | |
|---|---|
| True Sun on 1.2.71 | =9s 18° 1′ |
| Elongation | =(−) 21 18 |
| Long. of Mercury | = 8 26 43 |
| | (I.E. 8 26 40) |

**Venus**

| $A_0$ | Jan. 1 | Apr. 1 |
|---|---|---|
| 370 | −46°·7 | −46°·4 |
| 380 | − 45·9 | − 45·8 |
| For 373·3 | ... 46·4 | 46·2 |

For Feb. 1 ... 46·4+1/3 (46·2−46·4)
=46°·4−0°·1=(−)46°·3

| | |
|---|---|
| True Sun on 1.2.71 | =9s 18° 1′ |
| Elongation | =(−) 1 16 18 |
| Long. of Venus | 8 1 43 |
| | (I.E. 8 1 31) |

*Example 3.* Find the longitudes of Mercury and Venus for May 5, 1970 (as usual for 5-30 A.M. I.S.T.)

| | Mercury | Venus |
|---|---|---|
| (P. 10) Days from conj. (1970, May 0) | 44·9 | 96·3 |
| Day of the month | 5 | 5 |
| $A_0$ ... | 49·9 | 101·3 |
| (Pp. 66 & 68) Interpolation factor | $\frac{\text{May 5—Apr. 23}}{46}$ | $\frac{\text{May 5—Apr. 1}}{91}$ |
| | $=\frac{12}{46}=1/4$ nearly. | $=\frac{34}{91}=1/3$ nearly. |

| Elongation | Apr. 23 | June 8 | | Apr. 1 | July 1 |
|---|---|---|---|---|---|
| For $A_0$=49·9 | +4·4 | +13·1 | For $A_0$=101·3 | +24·6 | +25·4 |
| Now for May 5 | +6°·6 | | May 5 | +24°·9 | |

| | | | |
|---|---|---|---|
| Long. of Sun on 5.5.70 | 0s 20° 39′ | Sun | 0s 20° 39′ |
| Elongation | (+) 6 36 | Elong. | (+) 24 54 |
| ∴ Mercury | =0 27 15 | Venus | =1 15 33 |
| | (I.E. 0 27 19) | | (I. E. 1 15 16) |

# MARS

The longitude of Mars is given for the zero-date as well as for the 15th of the month. Thus the motion obtained from the given figures is for 15 days during the first half of the month, and for 13 days, 14 days, 15 days or 16 days during the second half. In order to find the longitude for any intermediate date, first convert the interval of days from the zero-date or from the 15th into *Corresponding day* from the following table according to the period for which the motion is obtained.

| Period of 13 days | | Period of 14 days | | Period of 15 days | | Period of 16 days | |
|---|---|---|---|---|---|---|---|
| Interval | Corr. day | Interval | Corr. day | Interval | Corr. day | Interval | Corr. day |
| d | d | d | d | d | d | d | d |
| 1 | 1·2 | 1 | 1·1 | 1 | 1·0 | 1 | 0·9 |
| 2 | 2·3 | 2 | 2·1 | 2 | 2·0 | 2 | 1·9 |
| 3 | 3·5 | 3 | 3·2 | 3 | 3·0 | 3 | 2·8 |
| 4 | 4·6 | 4 | 4·3 | 4 | 4·0 | 4 | 3·7 |
| 5 | 5·8 | 5 | 5·4 | 5 | 5·0 | 5 | 4·7 |
| 6 | 6·9 | 6 | 6·4 | 6 | 6·0 | 6 | 5·6 |
| 7 | 8·1 | 7 | 7·5 | 7 | 7·0 | 7 | 6·6 |
| 8 | 9·2 | 8 | 8·6 | 8 | 8·0 | 8 | 7·5 |
| 9 | 10·4 | 9 | 9·6 | 9 | 9·0 | 9 | 8·4 |
| 10 | 11·5 | 10 | 10·7 | 10 | 10·0 | 10 | 9·4 |
| 11 | 12·7 | 11 | 11·8 | 11 | 11·0 | 11 | 10·3 |
| 12 | 13·8 | 12 | 12·9 | 12 | 12·0 | 12 | 11·2 |
| 13 | 15·0 | 13 | 13·9 | 13 | 13·0 | 13 | 12·2 |
| | | 14 | 15·0 | 14 | 14·0 | 14 | 13·1 |
| | | | | 15 | 15·0 | 15 | 14·1 |
| | | | | | | 16 | 15·0 |

Then take the actual motion of Mars for the first half or the second half of the month as the case may be and from the following table find the movement up to the given date from the zero-date or from the 15th according to the 'Corresponding day' obtained above.

## Movement of Mars up to the given date

| Corr. day | Motion for the half month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° |
| | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° |
| 1 | 0·1 | 0·1 | 0·2 | 0·3 | 0·3 | 0·4 | 0·5 | 0·5 | 0·6 | 0·7 | 0·7 | 0·8 |
| 2 | 0·1 | 0·3 | 0·4 | 0·5 | 0·7 | 0·8 | 0·9 | 1·1 | 1·2 | 1·3 | 1·5 | 1·6 |
| 3 | 0·2 | 0·4 | 0·6 | 0·8 | 1·0 | 1·2 | 1·4 | 1·6 | 1·8 | 2·0 | 2·2 | 2·4 |
| 4 | 0·3 | 0·5 | 0·8 | 1·1 | 1·3 | 1·6 | 1·9 | 2·1 | 2·4 | 2·7 | 2·9 | 3·2 |
| 5 | 0·3 | 0·7 | 1·0 | 1·3 | 1·7 | 2·0 | 2·3 | 2·7 | 3·0 | 3·3 | 3·7 | 4·0 |
| 6 | 0·4 | 0·8 | 1·2 | 1·6 | 2·0 | 2·4 | 2·8 | 3·2 | 3·6 | 4·0 | 4·4 | 4·8 |
| 7 | 0·5 | 0·9 | 1·4 | 1·9 | 2·3 | 2·8 | 3·3 | 3·7 | 4·2 | 4.7 | 5·1 | 5·6 |
| 8 | 0·5 | 1·1 | 1·6 | 2·1 | 2·7 | 3·2 | 3·7 | 4·3 | 4·8 | 5·3 | 5·9 | 6·4 |
| 9 | 0·6 | 1·2 | 1·8 | 2·4 | 3·0 | 3·6 | 4·2 | 4·8 | 5·4 | 6·0 | 6·6 | 7·2 |
| 10 | 0·7 | 1·3 | 2·0 | 2·7 | 3·3 | 4·0 | 4·7 | 5·3 | 6·0 | 6·7 | 7·3 | 8·0 |
| 11 | 0·7 | 1·5 | 2·2 | 2·9 | 3·7 | 4·4 | 5·1 | 5·9 | 6·6 | 7·3 | 8·1 | 8·8 |
| 12 | 0·8 | 1·6 | 2·4 | 3·2 | 4·0 | 4·8 | 5·6 | 6·4 | 7·2 | 8·0 | 8·8 | 9·6 |
| 13 | 0·9 | 1·7 | 2·6 | 3·5 | 4·3 | 5·2 | 6·1 | 6·9 | 7·8 | 8·7 | 9·5 | 10·4 |
| 14 | 0·9 | 1·9 | 2·8 | 3·7 | 4·7 | 5·6 | 6·5 | 7·5 | 8·4 | 9·3 | 10·3 | 11·2 |
| 15 | 1·0 | 2·0 | 3·0 | 4·0 | 5·0 | 6·0 | 7·0 | 8·0 | 9·0 | 10·0 | 11·0 | 12·0 |

# OTHER PLANETS

The longitudes of the planets Jupiter to Pluto are given for the zero-date of each month. To obtain the longitude for any intermediate date, find the monthly motion and then take from the following table the movement of the planet up to the given date of the month and apply the same to the longitude for the zero-date.

## Movement up to the given date

| Date of month / For month of | | | | MONTHLY MOTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 28*d* | 29*d* | 30*d* | 31*d* | 1° | 2° | 3° | 4° | 5° | 6° | 7° |
| 1·9 | 1·9 | 2 | 2·1 | 0°·1 | 0°·1 | 0°·2 | 0°·3 | 0°·3 | 0°·4 | 0°·5 |
| 3·7 | 3·9 | 4 | 4·1 | 0·1 | 0·3 | 0·4 | 0·5 | 0·7 | 0·8 | 0·9 |
| 5·6 | 5·8 | 6 | 6·2 | 0·2 | 0·4 | 0·6 | 0·8 | 1·0 | 1·2 | 1·4 |
| 7·5 | 7·7 | 8 | 8·3 | 0·3 | 0·5 | 0·8 | 1·1 | 1·3 | 1·6 | 1·9 |
| 9·3 | 9·7 | 10 | 10·3 | 0·3 | 0·7 | 1·0 | 1·3 | 1·7 | 2·0 | 2·3 |
| 11·2 | 11·6 | 12 | 12·4 | 0·4 | 0·8 | 1·2 | 1·6 | 2·0 | 2·4 | 2·8 |
| 13·1 | 13·5 | 14 | 14·5 | 0·5 | 0·9 | 1·4 | 1·9 | 2·3 | 2·8 | 3·3 |
| 14·0 | 14·5 | 15 | 15·5 | 0·5 | 1·0 | 1·5 | 2·0 | 2·5 | 3·0 | 3·5 |
| 14·9 | 15·5 | 16 | 16·5 | 0·5 | 1·1 | 1·6 | 2·1 | 2·7 | 3·2 | 3·7 |
| 16·8 | 17·4 | 18 | 18·6 | 0·6 | 1·2 | 1·8 | 2·4 | 3·0 | 3·6 | 4·2 |
| 18·7 | 19·3 | 20 | 20·7 | 0·7 | 1·3 | 2·0 | 2·7 | 3·3 | 4·0 | 4·7 |
| 20·5 | 21·3 | 22 | 22·7 | 0·7 | 1·5 | 2·2 | 2·9 | 3·7 | 4·4 | 5·1 |
| 22·4 | 23·2 | 24 | 24·8 | 0·8 | 1·6 | 2·4 | 3·2 | 4·0 | 4·8 | 5·6 |
| 24·3 | 25·1 | 26 | 26·9 | 0·9 | 1·7 | 2·6 | 3·4 | 4·3 | 5·2 | 6·1 |
| 26·1 | 27·1 | 28 | 28·9 | 0·9 | 1·9 | 2·8 | 3·7 | 4·7 | 5·6 | 6·5 |
| 28·0 | 29·0 | 30 | 31·0 | 1·0 | 2·0 | 3·0 | 4·0 | 5·0 | 6·0 | 7·0 |

*Note*—When the movement of the planet (Mars to Pluto) is retrograde *i.e.* the longitude of the planet is decreasing, then the movement up to the date obtained above is to be subtracted from the longitude given for the initial date.

# RAHU

| Date | Movement | Date | Movement | Date | Movement | Date | Movement |
|---|---|---|---|---|---|---|---|
| 1 | -0°·1 | 9 | -0°·5 | 17 | -0°·9 | 25 | -1°·3 |
| 2 | 0·1 | 10 | 0·5 | 18 | 0·9 | 26 | 1·4 |
| 3 | 0·2 | 11 | 0·6 | 19 | 1·0 | 27 | 1·4 |
| 4 | 0·2 | 12 | 0·6 | 20 | 1·1 | 28 | 1·5 |
| 5 | 0·3 | 13 | 0·7 | 21 | 1·1 | 29 | 1·5 |
| 6 | 0·3 | 14 | 0·7 | 22 | 1·2 | 30 | 1·6 |
| 7 | 0·4 | 15 | 0·8 | 23 | 1·2 | 31 | -1·6 |
| 8 | -0·4 | 16 | -0·8 | 24 | -1·3 | | |

*N.B.*—In this Ephemeris the longitude of mean Rahu (*i.e.* mean node of the lunar orbit) has been given and *not* of the true node. Hence the motion of Rahu is always negative.

## Conjunctions of Planets with Sun

### Tab. I—Date of Mean Conjunction and Common Mean Longitude

| Year | Mars | | Jupiter | | Saturn | |
|---|---|---|---|---|---|---|
| | Date | Long. | Date | Long. | Date | Long. |
| | | s ° | | s ° | | s ° |
| 1951 | May 2·64 | 0 16·34 | Mar. 16·13 | 10 29·52 | Sept. 21·53 | 5 06·18 |
| 1952* | ... | ... | Apr. 18·02 | 0 02·66 | Oct. 3·62 | 5 18·83 |
| 1953 | June 20·58 | 2 05·05 | May 21·90 | 1 05·80 | Oct. 16·71 | 6 01·48 |
| 1954 | ... | ... | June 24·78 | 2 08·95 | Oct. 29·81 | 6 14·13 |
| 1955 | Aug. 9·52 | 3 23·76 | July 28·67 | 3 12·09 | Nov. 11·90 | 6 26·79 |
| 1956* | ... | ... | Aug. 30·55 | 4 15·24 | Nov. 23·99 | 7 09·44 |
| 1957 | Sept. 27·45 | 5 12·48 | Oct. 3·44 | 5 18·38 | Dec. 7·08 | 7 22·09 |
| 1958 | ... | ... | Nov. 6·32 | 6 21·52 | Dec. 20·17 | 8 04·74 |
| 1959 | Nov. 16·39 | 7 01·19 | Dec. 10·21 | 7 24·66 | — | — |
| 1960* | ... | ... | — | — | Jan. 2·27 | 8 17·39 |
| 1961 | ... | ... | Jan. 12·09 | 8 27·80 | Jan. 14·36 | 9 00·04 |
| 1962 | Jan. 4·32 | 8 19·90 | Feb. 14·97 | 10 00·95 | Jan. 27·45 | 9 12·69 |
| 1963 | ... | ... | Mar. 20·86 | 11 04·09 | Feb. 9·54 | 9 25·34 |
| 1964* | Feb. 23·26 | 10 08·61 | Apr. 22·74 | 0 07·23 | Feb. 22·63 | 10 07·99 |
| 1965 | ... | ... | May 26·63 | 1 10·38 | Mar. 6·72 | 10 20·64 |
| 1966 | Apr. 13·20 | 11 27·32 | June 29·51 | 2 13·52 | Mar. 19·82 | 11 03·29 |
| 1967 | ... | ... | Aug. 2·39 | 3 16·67 | Apr. 1·91 | 11 15·94 |
| 1968* | June 1·13 | 1 16·04 | Sept. 4·28 | 4 19·81 | Apr. 14·01 | 11 28·59 |
| 1969 | ... | ... | Oct. 8·16 | 5 22·95 | Apr. 27·11 | 0 11·24 |
| 1970 | July 21·07 | 3 04·75 | Nov. 11·05 | 6 26·10 | May 10·19 | 0 23·90 |
| 1971 | ... | ... | Dec. 14·93 | 7 29·24 | May 23·28 | 1 06·55 |
| 1972* | Sept. 8·00 | 4 23·46 | — | — | June 4·37 | 1 19·20 |
| 1973 | ... | ... | Jan. 16·81 | 9 02·39 | June 17·46 | 2 01·85 |
| 1974 | Oct. 27·94 | 6 12·17 | Feb. 19·70 | 10 05·53 | June 30·55 | 2 14·50 |
| 1975 | ... | ... | Mar. 25·58 | 11 08·68 | July 13·65 | 2 27·15 |
| 1976* | Dec. 15·88 | 8 00·88 | Apr. 27·47 | 0 11·82 | July 25·74 | 3 09·80 |
| 1977 | ... | ... | May 31·35 | 1 14·96 | Aug. 7·83 | 3 22·46 |
| 1978 | ... | ... | July 4·23 | 2 18·11 | Aug. 20·92 | 4 05·11 |
| 1979 | Feb. 3·81 | 9 19·60 | Aug. 7·12 | 3 21·25 | Sept. 3·01 | 4 17·76 |
| 1980* | ... | ... | Sept. 9·00 | 4 24·40 | Sept. 15·11 | 5 00·41 |
| 1981 | Mar. 24·75 | 11 08·31 | Oct. 12·89 | 5 27·54 | Sept. 28·20 | 5 13·06 |
| 1982 | ... | ... | Nov. 15·77 | 7 00·68 | Oct. 11·29 | 5 25·71 |
| 1983 | May 13·68 | 0 27·02 | Dec. 19·66 | 8 03·82 | Oct. 24·38 | 6 08·36 |
| 1984* | ... | ... | — | — | Nov. 5·47 | 6 21·01 |
| 1985 | July 1·62 | 2 15·73 | Jan. 21·54 | 9 06·96 | Nov. 18·57 | 7 03·66 |
| 1986 | ... | ... | Feb. 24·42 | 10 10·11 | Dec. 1·66 | 7 16·32 |
| 1987 | Aug. 20·56 | 4 04·44 | Mar. 30·31 | 11 13·25 | Dec. 14·75 | 7 28·97 |
| 1988* | ... | ... | May 2·19 | 0 16·39 | Dec. 26·84 | 8 11·62 |
| 1989 | Oct. 8·49 | 5 23·16 | June 5·08 | 1 19·54 | — | — |
| 1990 | ... | ... | July 8·96 | 2 22·68 | Jan. 8·93 | 8 24·27 |
| 1991 | Nov. 27·43 | 7 11·87 | Aug. 11·84 | 3 25·83 | Jan. 22·03 | 9 06·92 |
| 1992* | ... | ... | Sept. 13·73 | 4 28·97 | Feb. 4·12 | 9 19·57 |
| 1993 | ... | ... | Oct. 17·61 | 6 02·11 | Feb. 16·21 | 10 02·22 |
| 1994 | Jan. 15·36 | 9 00·58 | Nov. 20·50 | 7 05·26 | Mar. 1·30 | 10 14·87 |
| 1995 | ... | ... | Dec. 24·38 | 8 08·40 | Mar. 14·39 | 10 27·52 |
| 1996* | Mar. 5·30 | 10 19·29 | — | — | Mar. 26·49 | 11 10·17 |
| 1997 | ... | ... | Jan. 26·26 | 9 11·55 | Apr. 8·58 | 11 22·83 |
| 1998 | Apr. 24·24 | 0 08·00 | Mar. 1·15 | 10 14·69 | Apr. 21·67 | 0 05·48 |
| 1999 | ... | ... | Apr. 4·03 | 11 17·84 | May 4·76 | 0 18·13 |
| 2000* | June 12·17 | 1 26·72 | May 6·92 | 0 20·98 | May 16·85 | 1 00·78 |

N.B.—The date commences from 0*h* I.S.T. ( *i.e.* Indian mid-night ).

## Conjunctions of Planets with Sun

Tab. I – Date of Mean Conjunction and Common Mean Longitude

| Year | Mars | | Jupiter | | Saturn | |
|---|---|---|---|---|---|---|
| | Date | Long. | Date | Long. | Date | Long. |
| | | s ° | | s ° | | s ° |
| 2001 | ... | ... | June 9·80 | 1 24·12 | May 29·95 | 1 13·43 |
| 2002 | Aug. 1·11 | 3 15·43 | July 13·68 | 2 27·27 | June 12·04 | 1 26·08 |
| 2003 | ... | ... | Aug. 16·57 | 4 00·41 | June 25·13 | 2 08·73 |
| 2004* | Sept. 19·04 | 5 04·14 | Sept. 19·45 | 5 03·56 | July 7·22 | 2 21·38 |
| 2005 | ... | ... | Oct. 22·34 | 6 06·70 | July 20·31 | 3 04·03 |
| 2006 | Nov. 7·98 | 6 22·85 | Nov. 25·22 | 7 09·84 | Aug. 2·41 | 3 16·68 |
| 2007 | ... | ... | Dec. 29·11 | 8 12·98 | Aug. 15·50 | 3 29·34 |
| 2008* | Dec. 26·92 | 8 11·56 | — | — | Aug. 27·59 | 4 11·99 |
| 2009 | ... | ... | Jan. 30·99 | 9 16·12 | Sept. 9·68 | 4 24·64 |
| 2010 | ... | ... | Mar. 5·87 | 10 19·27 | Sept. 22·77 | 5 07·29 |
| 2011 | Feb. 14·85 | 10 00·28 | Apr. 8·76 | 11 22·41 | Oct. 5·87 | 5 19·94 |
| 2012* | ... | ... | May 11·64 | 0 25·55 | Oct. 17·96 | 6 02·59 |
| 2013 | Apr. 4·79 | 11 18·99 | June 14·53 | 1 28·70 | Oct. 31·05 | 6 15·24 |
| 2014 | ... | ... | July 18·41 | 3 01·84 | Nov. 13·14 | 6 27·89 |
| 2015 | May 24·72 | 1 07·70 | Aug. 21·29 | 4 04·99 | Nov. 26·23 | 7 10·54 |
| 2016* | ... | ... | Sept. 23·18 | 5 08·13 | Dec. 8·33 | 7 23·19 |
| 2017 | July 12·66 | 2 26·41 | Oct. 27·06 | 6 11·27 | Dec. 21·42 | 8 05·85 |
| 2018 | ... | ... | Nov. 29·95 | 7 14·42 | — | — |
| 2019 | Aug. 31·60 | 4 15·12 | — | — | Jan. 3·51 | 8 18·50 |
| 2020* | ... | ... | Jan. 2·83 | 8 17·56 | Jan. 16·60 | 9 01·15 |
| 2021 | Oct. 19·53 | 6 03·84 | Feb. 4·71 | 9 20·71 | Jan. 28·69 | 9 13·80 |
| 2022 | ... | ... | Mar. 10·60 | 10 23·85 | Feb. 10·79 | 9 26·45 |
| 2023 | Dec. 8·47 | 7 22·55 | Apr. 13·48 | 11 27·00 | Feb. 23·88 | 10 09·10 |
| 2024* | ... | ... | May 16·37 | 1 00·14 | Mar. 7·97 | 10 21·75 |
| 2025 | ... | ... | June 19·25 | 2 03·28 | Mar. 21·06 | 11 04·40 |
| 2026 | Jan. 26·40 | 9 11·26 | July 23·13 | 3 06·43 | Apr. 3·15 | 11 17·05 |
| 2027 | ... | ... | Aug. 26·02 | 4 09·57 | Apr. 16·24 | 11 29·70 |
| 2028* | Mar. 16·34 | 10 29·97 | Sept. 28·90 | 5 12·72 | Apr. 28·34 | 0 12·35 |
| 2029 | ... | ... | Oct. 31·79 | 6 15·86 | May 11·43 | 0 25·01 |
| 2030 | May 5·28 | 0 18·68 | Dec. 4·67 | 7 19·00 | May 24·52 | 1 07·66 |
| 2031 | ... | ... | — | — | June 6·61 | 1 20·31 |
| 2032* | June 23·21 | 2 07·40 | Jan. 7·56 | 8 22·14 | June 18·70 | 2 02·96 |
| 2033 | ... | ... | Feb. 9·44 | 9 25·28 | July 1·80 | 2 15·61 |
| 2034 | Aug. 12·15 | 3 26·11 | Mar. 14·32 | 10 28·43 | July 14·89 | 2 28·26 |
| 2035 | ... | ... | Apr. 18·21 | 0 01·57 | July 27·98 | 3 10·91 |
| 2036* | Sept. 30·08 | 5 14·82 | May 21·09 | 1 04·71 | Aug. 9·07 | 3 23·56 |
| 2037 | ... | ... | June 23·98 | 2 07·86 | Aug. 22·16 | 4 06·21 |
| 2038 | Nov. 19·02 | 7 03·53 | July 27·86 | 3 11·00 | Sept. 4·26 | 4 18·86 |
| 2039 | ... | ... | Aug. 30·74 | 4 14·15 | Sept. 17·35 | 5 01·52 |
| 2040* | ... | ... | Oct. 2·63 | 5 17·29 | Sept. 29·44 | 5 14·17 |
| 2041 | Jan. 6·96 | 8 22·24 | Nov 5·51 | 6 20·43 | Oct. 12·53 | 5 26·82 |
| 2042 | ... | ... | Dec. 9·40 | 7 23·58 | Oct. 25·62 | 6 09·47 |
| 2043 | Feb. 25·89 | 10 10·96 | — | — | Nov. 7·72 | 6 22·12 |
| 2044* | ... | ... | Jan. 12·28 | 8 26·72 | Nov. 19·81 | 7 04·77 |
| 2045 | Apr. 15·83 | 11 29·67 | Feb. 14·16 | 9 29·87 | Dec. 2·90 | 7 17·42 |
| 2046 | ... | ... | Mar. 20·05 | 11 03·01 | Dec. 15·99 | 8 00·07 |
| 2047 | June 4·76 | 1 18·38 | Apr. 22·93 | 0 06·16 | Dec. 29·08 | 8 12·72 |
| 2048* | ... | ... | May 25·82 | 1 09·30 | — | — |
| 2049 | July 23·70 | 3 07·09 | June 28·70 | 2 12·44 | Jan. 10·18 | 8 25·37 |
| 2050 | ... | ... | Aug. 1·58 | 3 15·59 | Jan. 23·27 | 9 08·03 |

N.B.—The date commences from 0*h* I. S. T. ( *i. e.* Indian mid-night )

## Conjunctions of Planets with Sun

Tab. II—Correction to time of Mean Conj. and to Mean Longitude

| Argument | | Mars | | Jupiter | | Saturn | |
|---|---|---|---|---|---|---|---|
| Mean Long. | Approx. date | Corr. to time | Corr. to long. | Corr. to time | Corr. to long. | Corr. to time | Corr. to long. |
| s ° | | d | ° | d | ° | d | ° |
| 8 15 | Jan. 0 | −20·8 | −21·4 | − 5·7 | − 6·0 | − 0·5 | − 0·6 |
| 9 00 | Jan. 15 | −19·0 | −18·9 | − 6·3 | − 6·1 | − 2·6 | − 2·2 |
| 9 15 | Jan. 30 | −15·3 | −14·7 | − 6·5 | − 5·7 | − 4·5 | − 3·7 |
| 10 00 | Feb. 15 | − 9·9 | − 8·6 | − 6·2 | − 5·0 | − 6·2 | − 4·9 |
| 10 15 | Mar. 2 | − 2·7 | − 1·1 | − 5·4 | − 3·8 | − 7·5 | − 5·9 |
| 11 00 | Mar. 17 | + 5·1 | + 6·9 | − 4·2 | − 2·4 | − 8·4 | − 6·5 |
| 11 15 | Apr. 1 | +11·9 | +13·6 | − 2·7 | − 0·8 | − 8·7 | − 6·7 |
| 0 00 | Apr. 16 | +17·1 | +18·7 | − 1·0 | + 0·9 | − 8·4 | − 6·4 |
| 0 15 | May 2 | +20·5 | +21·7 | + 0·9 | + 2·6 | − 7·6 | − 5·6 |
| 1 00 | May 17 | +21·9 | +22·6 | + 2·6 | + 4·0 | − 6·1 | − 4·5 |
| 1 15 | June 1 | +21·7 | +21·9 | + 4·2 | + 5·1 | − 4·1 | − 2·9 |
| 2 00 | June 16 | +20·3 | +20·0 | + 5·4 | + 5·8 | − 1·8 | − 1·1 |
| 2 15 | July 2 | +17·6 | +16·9 | + 6·2 | + 6·1 | + 0·6 | + 0·7 |
| 3 00 | July 17 | +14·2 | +13·2 | + 6·6 | + 5·9 | + 3·1 | + 2·6 |
| 3 15 | Aug. 1 | +10·3 | + 9·1 | + 6·5 | + 5·4 | + 5·2 | + 4·2 |
| 4 00 | Aug. 16 | + 6·2 | + 4·7 | + 6·0 | + 4·6 | + 6·9 | + 5·4 |
| 4 15 | Sept. 1 | + 2·0 | + 0·4 | + 5·2 | + 3·4 | + 8·1 | + 6·3 |
| 5 00 | Sept. 16 | − 2·2 | − 3·9 | + 4·0 | + 2·1 | + 8·7 | + 6·7 |
| 5 15 | Oct. 1 | − 6·4 | − 8·2 | + 2·6 | + 0·7 | + 8·6 | + 6·6 |
| 6 00 | Oct. 16 | −10·4 | −12·2 | + 1·1 | − 0·8 | + 8·0 | + 6·1 |
| 6 15 | Nov. 1 | −14·0 | −15·7 | − 0·5 | − 2·3 | + 6·9 | + 5·2 |
| 7 00 | Nov. 16 | −17·1 | −18·7 | − 2·1 | − 3·6 | + 5·4 | + 4·0 |
| 7 15 | Dec. 1 | −19·7 | −21·0 | − 3·5 | − 4·7 | + 3·6 | + 2·5 |
| 8 00 | Dec. 16 | −20·9 | −21·9 | − 4·8 | − 5·5 | + 1·6 | + 1·0 |
| 8 15 | Jan. 0 | −20·8 | −21·4 | − 5·7 | − 6·0 | − 0·5 | − 0·6 |

## Conversion of decimal of the day into hour

| Decimal of day | I.S.T. | G.M.T. | Decimal of day | I.S.T. | G.M.T. |
|---|---|---|---|---|---|
| | h m | h m | | h m | h m |
| 0·0 | 0 00 | 18 30* | 0·5 | 12 00 | 6 30 |
| ·1 | 2 24 | 20 54* | ·6 | 14 24 | 8 54 |
| ·2 | 4 48 | 23 18* | ·7 | 16 48 | 11 18 |
| ·23 | 5 31 | 0 01 | ·73 | 17 31 | 12 01 |
| ·3 | 7 12 | 1 42 | ·8 | 19 12 | 13 42 |
| ·4 | 9 36 | 4 06 | ·9 | 21 36 | 16 06 |
| 0·5 | 12 00 | 6 30 | 1·0 | 24 00 | 18 30 |

*Previous day of the calendar.

*Rule*: First take the figures of the 'date of mean conjunction' and the 'common mean longitude' for the planet and the year concerned from Table I. Then according to this mean longitude find from Table II the corresponding 'Correction to time' and 'Correction to mean longitude' by simple interpolation, and apply these corrections to the figures taken from Table I. The results will be the date of true conjunction of the planet and the nirayana true longitude common to both the planet and the sun at the time of conjunction. The decimal figure of the date converted by the above table would give the hour of the day.

## Example of Conjunctions of Planets

Find the date of true conjunction and the common longitude of conjunction of Mars, Jupiter and Saturn with the Sun occurring during the year 1970.

| | Mars | | | Jupiter | | | Saturn | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | s ° | | | s ° | | | s ° |
| 1970 (Tab. I) | July | 21·07 | 3-04·75 | Nov. | 11·05 | 6-26·10 | May | 10·19 | 0-23·90 |
| Corr. (Tab.II) | | +12·9 | +11·8 | | −1·7 | −3·2 | | −6·7 | −5·0 |
| | Aug. | 3·0 | 3-16·6 | Nov. | 9·4 | 6-22·9 | May | 3·5 | 0-18·9 |
| (Ind. Eph.) | | (2·7) | (3-16·3) | | (9·5) | (6-23·0) | | (3·2) | (0-18·7) |

## HELIACAL RISING AND SETTING

The planets set heliacally a few days before conjunction with the Sun and similarly rise some days after conjunction. This phenomena known as combustion of planets occurs when the planet attains the following degrees of difference from the Sun.

Mercury and Venus rise and set both in the West ( western horizon ) and in the East ( eastern horizon ). But the planets Mars, Jupiter and Saturn always set in the West and rise in the East.

### Degrees of difference from Sun

| | West | | | East | | |
|---|---|---|---|---|---|---|
| | | March | Sept. | | March | Sept. |
| Mercury | R or S | 11° | 15° | R or S | 15° | 11° |
| Venus | R or S | 6 | 9 | R or S | 9 | 6 |
| Mars | S | 14 | 20 | R | 20 | 14 |
| Jupiter | S | 9 | 13 | R | 13 | 9 |
| Saturn | S | 12 | 18 | R | 18 | 12 |

*N.B.*—The above degrees vary also according to the latitude of the place of observation. The figures given above are for 23° North latitude.

## RETROGRESSION OF PLANETS

The planets Mercury and Venus remain retrograde in motion during the time of inferior conjunction with the Sun. They become retrograde near about heliacal setting in the West and direct near heliacal rising in the East. The angular distance from the Sun, on either side, at which they become so are as follows :

Mercury...14° to 22° ; Venus...about 29°.

The superior planets remain retrograde near the time of opposition, *i.e.* when 'Planet − Sun' is 6 signs or 180 degrees. Approximate values of the angular distance 'Planet-Sun' at which they become retrograde or direct are stated below :

| | | | |
|---|---|---|---|
| Mars | R 7s 18° and D 4s 12° | Herschel | R 8s 17° and D 3s 13° |
| Jupiter | R 8s 5° and D 3s 25° | Neptune | R 8s 19° and D 3s 11° |
| Saturn | R 8s 11° and D 3s 19° | Pluto | R 8s 20° and D 3s 10° |

# PHENOMENA

The different phenomena of planets occurring in a synodic period are given below starting from certain dates of conjunction. The 'day' given shows the number of days from conjunction after which the phenomena occurs. The 'degree' represents in case of Mercury and Venus the elongation of the planet from the Sun. In case of superior planets it represents the degree by which the planet is ahead of its position of the last conjunction ; those in brackets however give the distance from the Sun on that day.

By simple interpolation according to the initial date of conjunction the dates of other phenomena can be approximately determined by applying the estimated intervals to the initial date or by utilising the longitude differences.

## Inferior Planets

| | MERCURY | | | | | | | | VENUS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date of C. | Dec. 7 | | Mar. 13 | | June 4 | | Sept. 10 | | Jan. 24 | | Apr. 12 | | June 20 | | Aug. 30 | | Nov. 9 | |
| | d | ° | d | ° | d | ° | d | ° | d | ° | d | ° | d | ° | d | ° | d | ° |
| Sup. conj. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rising W | 19 | 11 | 12 | 11 | 9 | 10 | 19 | 14 | 25 | 6 | 23 | 6 | 24 | 7 | 27 | 7 | 28 | 7 |
| Gt. Elong. | 37 | 19 | 25 | 19 | 36 | 26 | 46 | 24 | 220 | 46 | 217 | 47 | 220 | 47 | 224 | 46 | 223 | 45 |
| Retrogr. | 44 | 16 | 34 | 15 | 50 | 21 | 57 | 20 | 269 | 29 | 268 | 30 | 271 | 30 | 273 | 29 | 272 | 29 |
| Setting W | 48 | 11 | 39 | 10 | 52 | 19 | 61 | 15 | 282 | 13 | 286 | 6 | 289 | 6 | 290 | 8 | 283 | 16 |
| Inf. conj. | 53 | 0 | 45 | 0 | 64 | 0 | 68 | 0 | 290 | 0 | 289 | 0 | 292 | 0 | 294 | 0 | 294 | 0 |
| Rising E | 58 | −10 | 57 | −17 | 72 | −11 | 73 | −10 | 294 | − 6 | 292 | − 4 | 294 | − 2 | 300 | − 8 | 298 | − 5 |
| Direct | 65 | −21 | 58 | −18 | 74 | −14 | 77 | −16 | 311 | −27 | 309 | −28 | 313 | −28 | 316 | −28 | 315 | −29 |
| Gt. Elong. | 78 | −27 | 72 | −25 | 82 | −18 | 85 | −20 | 361 | −47 | 359 | −46 | 362 | −46 | 365 | −46 | 365 | −47 |
| Setting E | 104 | −17 | 95 | −13 | 96 | −11 | 110 | −11 | 559 | − 6 | 552 | − 6 | 555 | − 7 | 552 | −10 | 557 | − 9 |
| Sup. conj. | 122 | 0 | 106 | 0 | 107 | 0 | 130 | 0 | 580 | 0 | 576 | 0 | 583 | 0 | 591 | 0 | 589 | 0 |
| Date | Apr. 8 | | June 27 | | Sept. 19 | | Jan. 18 | | Aug. 30 | | Nov. 9 | | Jan. 24 | | Apr. 12 | | June 20 | |

## Superior Planets

| Conj. | Rising E | | Retrogress. | | Oppo. | | Direct | | Setting W | | Conj. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MARS** | | | | | | | | | | | | |
| | d | ° (°) | d | ° (°) | d | ° | d | ° (°) | d | ° (°) | d | ° |
| Mar. 17 | 64 | 49 (−14) | 332 | 195 (−132) | 371 | 186 | 413 | 176 (+129) | 739 | 382 (+14) | 766 | 424 |
| June 21 | 48 | 31 (−14) | 310 | 166 (−140) | 344 | 160 | 382 | 151 (+136) | 721 | 366 (+16) | 772 | 399 |
| Sept. 21 | 42 | 28 (−14) | 384 | 245 (−134) | 421 | 236 | 455 | 229 (+139) | 706 | 356 (+20) | 769 | 398 |
| Dec. 14 | 86 | 66 (−21) | 377 | 243 (−129) | 417 | 233 | 457 | 223 (+131) | 728 | 373 (+16) | 795 | 426 |
| **JUPITER** | | | | | | | | | | | | |
| Jan. 1 | 12 | 3 (− 9) | 140 | 22 (−117) | 200 | 17 | 261 | 12 (+117) | 387 | 31 (+ 9) | 398 | 34 |
| Apr. 17 | 13 | 3 (− 9) | 146 | 24 (−116) | 205 | 19 | 263 | 14 (+117) | 391 | 34 (+ 9) | 403 | 36 |
| July 5 | 12 | 3 (− 8) | 139 | 21 (−113) | 199 | 16 | 259 | 11 (+115) | 385 | 28 (+ 11) | 399 | 32 |
| Oct. 9 | 11 | 2 (− 8) | 134 | 20 (−115) | 194 | 15 | 257 | 10 (+115) | 382 | 27 (+ 11) | 396 | 30 |
| **SATURN** | | | | | | | | | | | | |
| Jan. 0 | 15 | 2 (−13) | 118 | 9 (−108) | 189 | 6 | 259 | 3 (+110) | 363 | 10 (+ 13) | 377 | 11 |
| Mar. 23 | 23 | 3 (−19) | 124 | 10 (−109) | 193 | 7 | 261 | 3 (+109) | 365 | 11 (+ 12) | 379 | 13 |
| July 6 | 17 | 2 (−13) | 124 | 11 (−109) | 190 | 7 | 258 | 4 (+108) | 365 | 12 (+ 13) | 380 | 14 |
| Oct. 11 | 16 | 2 (−14) | 117 | 9 (−109) | 185 | 6 | 256 | 3 (+108) | 363 | 10 (+ 13) | 377 | 12 |

*N.B.*—Here W means the western horizon and the planet visible in the evening sky before sunset and E means the eastern horizon and planet visible in the morning sky before sunrise. The phenomena of heliacal setting and rising are for the Central Station of India, 23° 11′ North latitude.

## DECLINATION OF SUN

The declination of Sun can be found from the following table according to the tropical or *sāyana* longitude of the Sun. ( Tropical longitude is obtained by adding *ayanamsa* to the Nirayana longitude ). When the longitude is less than 180°, the declination is North ; when greater than 180°, then deduct 180° from the longitude and find the declination which is then South.

| Trop. Long. | Decli. | Trop. Long. | Trop. Long. | Decli. | Trop. Long. | Trop. Long. | Decli. | Trop. Long. | Trop. Long. | Decli. | Trop. Long. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ° | ° ′ | ° | ° | ° ′ | ° | ° | ° ′ | ° | ° | ° ′ | ° |
| 0 | 0 0 | 180 | 23 | 8 57 | 157 | 46 | 16 39 | 134 | 69 | 21 49 | 111 |
| 1 | 0 24 | 179 | 24 | 9 19 | 156 | 47 | 16 56 | 133 | 70 | 21 58 | 110 |
| 2 | 0 48 | 178 | 25 | 9 41 | 155 | 48 | 17 12 | 132 | 71 | 22 7 | 109 |
| 3 | 1 12 | 177 | 26 | 10 3 | 154 | 49 | 17 29 | 131 | 72 | 22 15 | 108 |
| 4 | 1 36 | 176 | 27 | 10 24 | 153 | 50 | 17 45 | 130 | 73 | 22 23 | 107 |
| 5 | 1 59 | 175 | 28 | 10 46 | 152 | 51 | 18 1 | 129 | 74 | 22 30 | 106 |
| 6 | 2 23 | 174 | 29 | 11 7 | 151 | 52 | 18 17 | 128 | 75 | 22 37 | 105 |
| 7 | 2 47 | 173 | 30 | 11 29 | 150 | 53 | 18 32 | 127 | 76 | 22 43 | 104 |
| 8 | 3 11 | 172 | 31 | 11 50 | 149 | 54 | 18 47 | 126 | 77 | 22 49 | 103 |
| 9 | 3 34 | 171 | 32 | 12 11 | 148 | 55 | 19 2 | 125 | 78 | 22 55 | 102 |
| 10 | 3 58 | 170 | 33 | 12 31 | 147 | 56 | 19 16 | 124 | 79 | 23 0 | 101 |
| 11 | 4 21 | 169 | 34 | 12 52 | 146 | 57 | 19 30 | 123 | 80 | 23 5 | 100 |
| 12 | 4 45 | 168 | 35 | 13 12 | 145 | 58 | 19 44 | 122 | 81 | 23 9 | 99 |
| 13 | 5 8 | 167 | 36 | 13 32 | 144 | 59 | 19 57 | 121 | 82 | 23 13 | 98 |
| 14 | 5 31 | 166 | 37 | 13 52 | 143 | 60 | 20 10 | 120 | 83 | 23 16 | 97 |
| 15 | 5 55 | 165 | 38 | 14 11 | 142 | 61 | 20 22 | 119 | 84 | 23 19 | 96 |
| 16 | 6 18 | 164 | 39 | 14 30 | 141 | 62 | 20 34 | 118 | 85 | 23 22 | 95 |
| 17 | 6 41 | 163 | 40 | 14 49 | 140 | 63 | 20 46 | 117 | 86 | 23 24 | 94 |
| 18 | 7 4 | 162 | 41 | 15 8 | 139 | 64 | 20 58 | 116 | 87 | 23 25 | 93 |
| 19 | 7 27 | 161 | 42 | 15 27 | 138 | 65 | 21 9 | 115 | 88 | 23 26 | 92 |
| 20 | 7 50 | 160 | 43 | 15 45 | 137 | 66 | 21 19 | 114 | 89 | 23 27 | 91 |
| 21 | 8 12 | 159 | 44 | 16 3 | 136 | 67 | 21 30 | 113 | 90 | 23 27 | 90 |
| 22 | 8 34 | 158 | 45 | 16 21 | 135 | 68 | 21 40 | 112 | — | – | – |

## LATITUDE OF MOON

To be obtained from 'Moon—Rahu' *i.e.* ☽ − ☊.

| ☽ − ☊ | Lat. | ☽ − ☊ | ☽ − ☊ | Lat. | ☽ − ☊ | ☽ − ☊ | Lat. | ☽ − ☊ | ☽ − ☊ | Lat. | ☽ − ☊ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ° | ° ′ | ° | ° | ° ′ | ° | ° | ° ′ | ° | ° | ° ′ | ° |
| 0 | N0 0S | 360 | 45 | N3 38S | 315 | 90 | N5 9S | 270 | 135 | N3 38S | 225 |
| 5 | 0 27 | 355 | 50 | 3 56 | 310 | 95 | 5 7 | 265 | 140 | 3 18 | 220 |
| 10 | 0 54 | 350 | 55 | 4 13 | 305 | 100 | 5 4 | 260 | 145 | 2 57 | 215 |
| 15 | 1 20 | 345 | 60 | 4 27 | 300 | 105 | 4 58 | 255 | 150 | 2 34 | 210 |
| 20 | 1 46 | 340 | 65 | 4 40 | 295 | 110 | 4 50 | 250 | 155 | 2 10 | 205 |
| 25 | 2 10 | 335 | 70 | 4 50 | 290 | 115 | 4 40 | 245 | 160 | 1 46 | 200 |
| 30 | 2 34 | 330 | 75 | 4 58 | 285 | 120 | 4 27 | 240 | 165 | 1 20 | 195 |
| 35 | 2 57 | 325 | 80 | 5 4 | 280 | 125 | 4 13 | 235 | 170 | 0 54 | 190 |
| 40 | 3 18 | 320 | 85 | 5 7 | 275 | 130 | 3 56 | 230 | 175 | 0 27 | 185 |
| 45 | N3 38S | 315 | 90 | N5 9S | 270 | 135 | N3 38S | 225 | 180 | N0 0S | 180 |

# DECLINATION OF MOON

## ( And also of other planets )

When the latitude of the moon or of any planet is known, then the corresponding declination can be found in the following way.

First find the tropical or *sayana* longitude of the planet by adding ayanamsa to the *nirayana* longitude. Then find the declination according to this tropical longitude from the table given for Sun, which may be called the *declination of place*. Now add the latitude to the declination so found, and the result is the required declination of the moon or the planet in question.

The latitude and declination are $+ve$ when North and $-ve$ when South. While making the addition, it is to be done algebraically taking into account the sign of both.

When the declination is required to be determined with greater accuracy then a slightly lesser value of latitude, known as *reduced latitude*, is to be applied to the declination of place. The reduced latitude is obtained by multiplying the latitude of the planet by the *multiplier* taken from the following table given against the tropical longitude of the planet.

| Tropical long. of planet | | Multiplier | Tropical long. of planet | |
|---|---|---|---|---|
| ° | ° | | ° | ° |
| 0 | 180 | 0·917 | 180 | 360 |
| 10 | 170 | ·920 | 190 | 350 |
| 20 | 160 | ·926 | 200 | 340 |
| 30 | 150 | ·936 | 210 | 330 |
| 40 | 140 | ·949 | 220 | 320 |
| 50 | 130 | ·963 | 230 | 310 |
| 60 | 120 | ·977 | 240 | 300 |
| 70 | 110 | ·989 | 250 | 290 |
| 80 | 100 | 0·997 | 260 | 280 |
| 90 | 90 | 1·000 | 270 | 270 |

## Examples of Declination

**Example 1**—Required the declination of Moon on Jan. 0, 1972, when its tropical longitude = 87° 38′ and latitude = +3° 12′

For long. 88°, the multiplier = ·999

Reduced latitude = +3° 12′ × ·999 = +3° 12′

Declination of place = +23° 26′

∴ Declination of Moon = +23° 26′ +3° 12′ = +26° 38′ ( Ind. Eph. 26° N 37′ )

**Example 2**—Find the declination of Mercury on Aug. 1, 1972, when its trop. long. = 140° 18′ and latitude = −4° 41′

For long. 140°, the multiplier is ·949

Reduced latitude = −4° 41′ × ·949 = −4° 27′

Declination of place = +14° 43′

∴ Declination of Mercury = +14° 43′ − 4° 27′ = +10° 16′ ( I. E. 10° N17′ )

## LATITUDE OF INFERIOR PLANETS

For finding the latitude of Mercury and Venus first take the value of $A_0$ of the planet for the day and determine the value of $A_0+a$ after adding to it $a$ taken from the following table.

### Values of $a$ for Mercury and Venus

| Date | Mercury | Venus | Var. for | Mercury | Venus |
|---|---|---|---|---|---|
| Jan. 0 | 65·0 | 239·8 | 1 day | 0·3 | 1·6 |
| Feb. 0 | 74·9 | 289·4 | 2 days | 0·6 | 3·2 |
| Mar. 0 | 83·8 | 334·2 | 3 " | 1·0 | 4·8 |
| Apr. 0 | 93·6 | 383·7 | 4 " | 1·3 | 6·4 |
| May 0 | 103·1 | 431·7 | 5 " | 1·6 | 8·0 |
| June 0 | 112·9 | 481·2 | 6 " | 1·9 | 9·6 |
| July 0 | 6·6 | 529·2 | 7 " | 2·2 | 11·2 |
| Aug. 0 | 16·4 | 578·8 | 8 " | 2·5 | 12·8 |
| Sept. 0 | 26·2 | 44·4 | 9 " | 2·9 | 14·4 |
| Oct. 0 | 35·8 | 92·4 | 10 " | 3·2 | 16·0 |
| Nov. 0 | 45·6 | 141·9 | 20 " | 6·3 | 32·0 |
| Dec. 0 | 55·1 | 189·9 | 30 " | 9·5 | 48·0 |
| Jan. 0 | 65·0 | 239·4 | 31 " | 9·8 | 49·6 |

Daily motion of $A_0+a$ for Mercury is 1·32 and for Venus 2·6
Period of $A_0$, $a$, and $A_0+a$ for Mercury = 115·9, for Venus = 583·9
($A_0+a$ is the mean anomaly in units of 3°·107 and 0°·617 respectively)

### Latitude at unit distance

| MERCURY | | | | VENUS | | | |
|---|---|---|---|---|---|---|---|
| $A_0+a$ | Lat. | $A_0+a$ | Lat. | $A_0+a$ | Lat. | $A_0+a$ | Lat. |
| 0 | +1°·06 | 58 | -1°·60 | 0 | +1°·99 | 292 | -2°·02 |
| 5 | 1·74 | 63 | 2·07 | 24 | 2·29 | 316 | 2·32 |
| 10 | 2·18 | 68 | 2·45 | 49 | 2·43 | 341 | 2·46 |
| 14 | 2·38 | 72 | 2·73 | 73 | 2·41 | 365 | 2·43 |
| 19 | 2·34 | 77 | 2·91 | 97 | 2·22 | 389 | 2·24 |
| 24 | 2·11 | 82 | 2·93 | 122 | 1·86 | 414 | 1·87 |
| 29 | 1·72 | 87 | 2·79 | 146 | 1·39 | 438 | 1·39 |
| 34 | 1·23 | 92 | 2·50 | 170 | 0·83 | 462 | 0·82 |
| 39 | 0·69 | 97 | 2·03 | 195 | +0·20 | 487 | -0·19 |
| 43 | +0·09 | 101 | 1·37 | 219 | -0·44 | 511 | +0·43 |
| 48 | -0·50 | 106 | -0·58 | 243 | 1·05 | 535 | 1·04 |
| 53 | 1·06 | 111 | +0·25 | 268 | 1·59 | 560 | 1·57 |
| 58 | -1·60 | 116 | +1·06 | 292 | -2·02 | 584 | +1·99 |

When the above latitude is divided by the distance of the planet from the Sun, then the heliocentric latitude is obtained. Similarly when multiplied by the reciprocal of the distance from the Earth, then we get the geocentric latitude.

### Multiplier for getting geocentric latitude

| Date | MERCURY | | | VENUS | | |
|---|---|---|---|---|---|---|
| | At Sup. conj. | At Gt. elongation | At Inf. conj. | At Sup. conj. | At Gt. elongation | At Inf. conj. |
| Mar. 8 | 0·73 | 1·07 | 1·60 | 0·58 | 1·40 | 3·66 |
| June 8 | ·75 | 1·07 | 1·83 | ·58 | 1·40 | 3·46 |
| Sept. 9 | ·73 | 1·07 | 1·56 | ·58 | 1·40 | 3·57 |
| Dec. 10 | ·69 | 1·07 | 1·49 | ·58 | 1·40 | 3·78 |
| Mar. 8 | 0·73 | 1·07 | 1·60 | 0·58 | 1·40 | 3·66 |

# LATITUDE OF MARS

First take the longitude of Mars and subtract from it the longitude of Sun, and according to this difference take the values of 'Correction' and 'Multiplier' from the following table.

| Mars - Sun | Correction to Mars | Multiplier for Lat. | Mars - Sun | Correction to Mars | Multiplier for Lat. |
|---|---|---|---|---|---|
| s ° | s ° | | s ° | s ° | |
| 0 0 | +0 00 | 0·39 | 6 0 | -0 00 | 2·01 |
| 0 15 | 0 10 | 0·40 | 6 15 | 0 10 | 2·00 |
| 1 0 | 0 19 | 0·43 | 7 0 | 0 19 | 1·96 |
| 1 15 | 0 28 | 0·48 | 7 15 | 0 28 | 1·82 |
| 2 0 | 1 05 | 0·58 | 8 0 | 1 05 | 1·56 |
| 2 15 | 1 09 | 0·73 | 8 15 | 1 09 | 1·25 |
| 3 0 | 1 11 | 0·95 | 9 0 | 1 11 | 0·95 |
| 3 15 | 1 09 | 1·25 | 9 15 | 1 09 | 0·73 |
| 4 0 | 1 05 | 1·56 | 10 0 | 1 05 | 0·58 |
| 4 15 | 0 29 | 1·82 | 10 15 | 0 29 | 0·48 |
| 5 0 | 0 20 | 1·96 | 11 0 | 0 20 | 0·43 |
| 5 15 | 0 10 | 2·00 | 11 15 | 0 10 | 0·40 |
| 6 0 | +0 00 | 2·01 | 12 0 | -0 00 | 0·39 |

Apply the correction to the longitude of Mars and against this corrected longitude take the value of latitude from the following table. Multiply the latitude by the multiplier as obtained from the above table and the result is the geocentric latitude of the planet. (This corrected longitude is the heliocentric longitude).

| Corrected Long. | Latitude | Corrected Long. | Latitude | Corrected Long. | Latitude |
|---|---|---|---|---|---|
| s ° | ° | s ° | ° | s ° | ° |
| 0 26 | + 0·00 | 4 26 | + 2·66 | 8 26 | - 2·27 |
| 1 11 | 0·72 | 5 11 | 2·14 | 9 11 | 2·49 |
| 1 26 | 1·44 | 5 26 | 1·51 | 9 26 | 2·56 |
| 2 11 | 2·06 | 6 11 | + 0·76 | 10 11 | 2·46 |
| 2 26 | 2·58 | 6 26 | 0·00 | 10 26 | 2·22 |
| 3 11 | 2·92 | 7 11 | - 0·73 | 11 11 | 1·82 |
| 3 26 | 2·99 | 7 26 | 1·37 | 11 26 | 1·31 |
| 4 11 | 2·97 | 8 11 | 1·88 | 0 11 | 0·69 |
| 4 26 | + 2·66 | 8 26 | - 2·27 | 0 26 | - 0·00 |

## NOTE

After finding the latitude in case of the planets Mercury, Venus and Mars the corresponding declination is to be obtained by the method given on page 80.

As regards the outer planets Jupiter to Pluto, their latitude (and also declination) can be roughly obtained directly according to the *Nirayana* longitude of the planet from the table given on the next page. For Jupiter and Saturn a small correction has been indicated at the bottom of the table which may be applied to the latitude if greater accuracy is desired.

# LATITUDE and DECLINATION of OUTER PLANETS

## (According to Nirayana Longitude)

| Jupiter | | | Saturn | | | Herschel | | | Neptune | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Long. | Lat. | Decli. | Long. | Lat. | Decli. | Long. | Lat. | Decli. | Long. | Lat. | Decli. |
| s ° | ° | ° | s ° | ° | ° | s ° | ° | ° | s ° | ° | ° |
| 2 17 | +0·0 | +23·0 | 3 0 | +0·0 | +21·3 | 1 20 | +0·0 | +22·5 | 3 18 | +0·0 | +17·2 |
| 3 2 | 0·3 | 21·3 | 3 15 | 0·6 | 18·6 | 2 5 | 0·2 | 23·7 | 4 3 | 0·5 | 13·0 |
| 3 17 | 0·7 | 18·2 | 4 0 | 1·3 | 14·8 | 2 20 | 0·4 | 23·1 | 4 18 | 0·9 | 8·0 |
| 4 2 | 0·9 | 13·8 | 4 15 | 1·8 | 10·0 | 3 5 | 0·6 | 21·0 | 5 3 | 1·3 | + 2·5 |
| 4 17 | 1·1 | 8·6 | 5 0 | 2·2 | + 4·6 | 3 20 | 0·7 | 17·4 | 5 18 | 1·5 | - 3·3 |
| 5 2 | 1·3 | + 2·9 | 5 15 | 2·4 | - 1·2 | 4 5 | 0·7 | 12·5 | 6 3 | 1·7 | 8·7 |
| 5 17 | 1·3 | - 3·0 | 6 0 | 2·5 | 6·8 | 4 20 | 0·8 | 7·1 | 6 18 | 1·8 | 13·7 |
| 6 2 | 1·3 | 8·7 | 6 15 | 2·4 | 12·1 | 5 5 | 0·7 | + 1·1 | 7 3 | 1·7 | 17·8 |
| 6 17 | 1·1 | 14·0 | 7 0 | 2·2 | 16·6 | 5 20 | 0·7 | - 4·8 | 7 18 | 1·5 | 20·9 |
| 7 2 | 0·9 | 18·4 | 7 15 | 1·8 | 20·0 | 6 5 | 0·6 | 10·5 | 8 3 | 1·3 | 22·1 |
| 7 17 | 0·7 | 21·4 | 8 0 | 1·3 | 22·0 | 6 20 | 0·4 | 15·6 | 8 18 | 0·9 | 22·0 |
| 8 2 | +0·3 | -23·1 | 8 15 | +0·6 | -22·6 | 7 5 | +0·2 | -19·7 | 9 3 | +0·5 | -20·3 |
| 8 17 | -0·0 | -23·0 | 9 0 | -0·0 | -21·3 | 7 20 | -0·0 | -22·5 | 9 18 | -0·0 | -17·2 |
| 9 2 | 0·3 | 21·3 | 9 15 | 0·6 | 18·6 | 8 5 | 0·2 | 23·7 | 10 3 | 0·5 | 13·0 |
| 9 17 | 0·7 | 18·2 | 10 0 | 1·3 | 14·8 | 8 20 | 0·4 | 23·1 | 10 18 | 0·9 | 8·0 |
| 10 2 | 0·9 | 13·8 | 10 15 | 1·8 | 10·0 | 9 5 | 0·6 | 21·0 | 11 3 | 1·3 | - 2·5 |
| 10 17 | 1·1 | 8·6 | 11 0 | 2·2 | - 4·6 | 9 20 | 0·7 | 17·4 | 11 18 | 1·5 | + 3·3 |
| 11 2 | 1·3 | - 2·9 | 11 15 | 2·4 | + 1·2 | 10 5 | 0·7 | 12·5 | 0 3 | 1·7 | 8·7 |
| 11 17 | 1·3 | + 3·0 | 0 0 | 2·5 | 6·8 | 10 20 | 0·8 | 7·1 | 0 18 | 1·8 | 13·7 |
| 0 2 | 1·3 | 8·7 | 0 15 | 2·4 | 12·1 | 11 5 | 0·7 | - 1·1 | 1 3 | 1·7 | 17·8 |
| 0 17 | 1·1 | 14·0 | 1 0 | 2·2 | 16·6 | 11 20 | 0·7 | + 4·8 | 1 18 | 1·5 | 20·9 |
| 1 2 | 0·9 | 18·4 | 1 15 | 1·8 | 20·0 | 0 5 | 0·6 | 10·5 | 2 3 | 1·3 | 22·1 |
| 1 17 | 0·7 | 21·4 | 2 0 | 1·3 | 22·0 | 0 20 | 0·4 | 15·6 | 2 18 | 0·9 | 22·0 |
| 2 2 | 0·3 | 23·1 | 2 15 | 0·6 | 22·6 | 1 5 | 0·2 | 19·7 | 3 3 | 0·5 | 20·3 |
| 2 17 | -0·0 | +23·0 | 3 0 | -0·0 | +21·3 | 1 20 | -0·0 | +22·5 | 3 18 | -0·0 | +17·2 |

N.B.—Near conjunction with Sun, the latitude is slightly diminished and near opposition slightly increased in value; the multiplying factor to be applied to the above latitude for this purpose is 0·8 and 1·2 for Jupiter, and 0·9 and 1·1 for Saturn at conjunction and opposition respectively.

## Pluto

| Long. | Lat. | Decli. | Long. | Lat. | Decli. | Long. | Lat. | Decli. |
|---|---|---|---|---|---|---|---|---|
| s ° | ° | ° | s ° | ° | ° | s ° | ° | ° |
| 2 26 | + 0·0 | +22·0 | 6 26 | +14·8 | - 3·6 | 10 26 | -14·8 | -17·6 |
| 3 6 | 3·0 | 23·1 | 7 6 | 13·1 | 7·4 | 11 6 | 16·1 | 14·8 |
| 3 16 | 5·9 | 23·5 | 7 16 | 11·0 | 11·1 | 11 16 | 16·9 | 11·5 |
| 3 26 | 8·6 | 23·0 | 7 26 | 8·6 | 14·5 | 11 26 | 17·1 | 8·0 |
| 4 6 | 11·0 | 21·8 | 8 6 | 5·9 | 17·6 | 0 6 | 16·9 | 4·3 |
| 4 16 | 13·1 | 19·9 | 8 16 | + 3·0 | 20·1 | 0 16 | 16·1 | - 0·5 |
| 4 26 | 14·8 | 17·6 | 8 26 | 0·0 | 22·0 | 0 26 | 14·8 | + 3·6 |
| 5 6 | 16·1 | 14·8 | 9 6 | - 3·0 | 23·1 | 1 6 | 13·1 | 7·4 |
| 5 16 | 16·9 | 11·5 | 9 16 | 5·9 | 23·5 | 1 16 | 11·0 | 11·1 |
| 5 26 | 17·1 | 8·0 | 9 26 | 8·6 | 23·0 | 1 26 | 8·6 | 14·5 |
| 6 6 | 16·9 | 4·3 | 10 6 | 11·0 | 21·8 | 2 6 | 5·9 | 17·6 |
| 6 16 | 16·1 | + 0·5 | 10 16 | 13·1 | 19·9 | 2 16 | 3·0 | 20·1 |
| 6 26 | +14·8 | - 3·6 | 10 26 | -14·8 | -17·6 | 2 26 | - 0·0 | +22·0 |

# TRANSIT OF SUN

## ( Sun's entry into Nirayana Rasis )

The times of transit of the Sun into different *Rasis* are given below for the four years 1951, 1952, 1953 and 1954, and corrections for getting the corresponding figures for other years are given separately. The time is in I. S. T. reckoned from 0*h* mid-night.

| Rasi | 1951 | | | 1952* | | | 1953 | | | 1954 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | d | h | | d | h | | d | h | | d | h |
| Makara | Jan | 14 | 9·5 | Jan. | 14 | 15·6 | Jan. | 13 | 21·8 | Jan. | 14 | 3·9 |
| Kumbha | Feb. | 12 | 22·4 | Feb. | 13 | 4·6 | Feb. | 12 | 10·8 | Feb. | 12 | 16·9 |
| Mina | Mar. | 14 | 19·4 | Mar. | 14 | 1·5 | Mar. | 14 | 7 7 | Mar. | 14 | 13·8 |
| Mesha | Apr. | 14 | 3·2 | Apr. | 13 | 10·1 | Apr. | 13 | 16·2 | Apr. | 13 | 22·4 |
| Vrisha | May | 15 | 0·8 | May | 14 | 7·0 | May | 14 | 13·1 | May | 14 | 19·3 |
| Mithuna | June | 15 | 7·5 | June | 14 | 13·6 | June | 14 | 19·8 | June | 15 | 1·9 |
| Karkata | July | 16 | 18·4 | July | 16 | 0·5 | July | 16 | 6·7 | July | 16 | 12·8 |
| Simha | Aug. | 17 | 2·8 | Aug. | 16 | 8·9 | Aug. | 16 | 15·1 | Aug. | 16 | 21·2 |
| Kanya | Sept. | 17 | 2·7 | Sept. | 16 | 8·8 | Sept. | 16 | 15·0 | Sept. | 16 | 21·1 |
| Tula | Oct. | 17 | 14·6 | Oct. | 16 | 20·7 | Oct. | 17 | 2·9 | Oct. | 17 | 9·0 |
| Vrischika | Nov. | 16 | 14·3 | Nov. | 15 | 20·5 | Nov. | 16 | 2·6 | Nov. | 16 | 8·8 |
| Dhanus | Dec. | 16 | 4·9 | Dec. | 15 | 11·1 | Dec. | 15 | 17·2 | Dec. | 15 | 23·4 |

## Correction for other years

For 1955, use 1951 and add 0·6*h* ; For 1956, use 1952 and add 0·6*h*.
For 1957, use 1953 and add 0·6*h* ; For 1958, use 1954 and add 0·6*h*.

In this way the transit times for other years may be obtained from the figures for the four basic years 1951 to 1954 by applying the corrections given below for different 4-yearly cycles.

| For years | Correction | For years | Correction | For years | Correction |
|---|---|---|---|---|---|
| | h | | h | | h |
| 1903 - 1906 | - 7·3 | 1955 - 1958 | + 0·6 | 2003 - 2006 | · 7·9 |
| 1907 - 1910 | 6·7 | 1959 - 1962 | 1·2 | 2007 - 2010 | 8·6 |
| 1911 - 1914 | 6·1 | 1963 - 1966 | 1·8 | 2011 - 2014 | 9·2 |
| 1915 - 1918 | 5·5 | 1967 - 1970 | 2·4 | 2015 - 2018 | 9·8 |
| 1919 - 1922 | 4·9 | 1971 - 1974 | 3·1 | 2019 - 2022 | 10·4 |
| 1923 - 1926 | 4·3 | 1975 - 1978 | 3.7 | 2023 - 2026 | 11·0 |
| 1927 - 1930 | 3·7 | 1979 - 1982 | 4·3 | 2027 - 2030 | 11·6 |
| 1931 - 1934 | 3·1 | 1983 - 1986 | 4·9 | 2031 - 2034 | 12·2 |
| 1935 - 1938 | 2·4 | 1987 - 1990 | 5·5 | 2035 - 2038 | 12·8 |
| 1939 - 1942 | 1·8 | 1991 - 1994 | 6·1 | 2039 - 2042 | 13·4 |
| 1943 - 1946 | 1·2 | 1995 - 1998 | 6·7 | 2043 - 2046 | 14·0 |
| 1947 - 1950 | - 0·6 | 1999 - 2002 | + 7·3 | 2047 - 2050 | + 14·7 |

Further correction for 100 yrs. + 0*d* 15·3*h* ; 200 yrs + 1*d* 6·5*h* ;
300 yrs. + 1*d* 21·8*h* ; 400 yrs. + 2*d* 13·1*h* ; 500 yrs. + 3*d* 4·4*h*.

( The corrections are negative for earlier centuries )

## SUN'S TRANSIT ACCORDING TO SURYA-SIDDHANTA

The times of different Samkrantis ( Sun's entry into *Rasis* ) according to the old school Panchangs following Surya-Siddhanta calculations are given below in I.S.T. reckoned from 0*h* mid-night.

| Rasi | 1951 | | | 1952* | | | 1953 | | | 1954 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | d | h | | d | h | | d | h | | d | h |
| Makara | Jan. | 14 | 11·3 | Jan. | 14 | 17·5 | Jan. | 13 | 23·7 | Jan. | 14 | 5·9 |
| Kumbha | Feb. | 12 | 22·1 | Feb. | 13 | 4·3 | Feb. | 12 | 10·6 | Feb. | 12 | 16·8 |
| Mina | Mar. | 14 | 17·8 | Mar. | 14 | 0·0 | Mar. | 14 | 6·2 | Mar. | 14 | 12·4 |
| Mesha | Apr. | 14 | 2·1 | Apr | 13 | 8·3 | Apr. | 13 | 14·5 | Apr. | 13 | 20·7 |
| Vrisha | May | 15 | 0·4 | May | 14 | 6·7 | May | 14 | 12·9 | May | 14 | 19·1 |
| Mithuna | June | 15 | 10·6 | June | 14 | 16·8 | June | 14 | 23·0 | June | 15 | 5·2 |
| Karkata | July | 17 | 2·1 | July | 16 | 8·4 | July | 16 | 14·6 | July | 16 | 20·8 |
| Simha | Aug | 17 | 13·5 | Aug. | 16 | 19·7 | Aug. | 17 | 1·9 | Aug. | 17 | 8·1 |
| Kanya | Sept | 17 | 13·8 | Sept | 16 | 20·0 | Sept. | 17 | 2·2 | Sept. | 17 | 8·4 |
| Tula | Oct. | 18 | 0·3 | Oct | 17 | 6·5 | Oct. | 17 | 12·7 | Oct | 17 | 18·9 |
| Vrischika | Nov | 16 | 21·7 | Nov. | 16 | 3·9 | Nov | 16 | 10·1 | Nov. | 16 | 16·3 |
| Dhanus | Dec | 16 | 9·7 | Dec | 15 | 15·9 | Dec. | 15 | 22·1 | Dec. | 16 | 4·3 |

### Correction for other years

| For years | Correction | For years | Correction | For years | Correction |
|---|---|---|---|---|---|
| | h | | h | | h |
| 1903-1906 | −10·1 | 1955-1958 | +0·8 | 2003-2006 | +10·9 |
| 1907-1910 | 9·2 | 1959-1962 | 1·7 | 2007-2010 | 11·8 |
| 1911-1914 | 8·4 | 1963-1966 | 2·5 | 2011-2014 | 12·6 |
| 1915-1918 | 7·6 | 1967-1970 | 3·4 | 2015-2018 | 13·4 |
| 1919-1922 | 6·7 | 1971-1974 | 4·2 | 2019-2022 | 14·3 |
| 1923-1926 | 5·9 | 1975-1978 | 5·0 | 2023-2026 | 15·1 |
| 1927-1930 | 5·0 | 1979-1982 | 5·3 | 2027-2030 | 16·0 |
| 1931-1934 | 4·2 | 1983-1986 | 6·7 | 2031-2034 | 16·8 |
| 1935-1938 | 3·4 | 1987-1990 | 7·6 | 2035-2038 | 17·7 |
| 1939-1942 | 2·5 | 1991-1994 | 8·4 | 2039-2042 | 18·5 |
| 1943-1946 | 1·7 | 1995-1998 | 9·2 | 2043-2046 | 19·3 |
| 1947-1950 | − 0·8 | 1999-2002 | +10·1 | 2047-2050 | +20·2 |

Correction for 100 yrs. +0*d* 21·0*h*; 200 yrs. +1*d* 18 0*h*;
300 yrs. +2*d* 15·0*h*; 400 yrs. +3*d* 12·1*h*;
500 yrs. +4*d* 9·1*h*;

( The corrections are negative for earlier centuries )

Note—The times of Samkranti ( in L.M.T. or I S.T ) given in the old school Panchangs that follow the Surya-Siddhanta calculations, and consequential determination of first day of the month of the related solar calendar are based on the above figures For some of such Panchangs a further small correction is required to be applied arising out of erroneous determination of *Desantar* (Longitude from Ujjain) by the earlier observers. For the old school Bengali Panchang (considered to be for Calcutta) the value of such correction is +0·2 *h*.

## SAYANA TRANSIT OF SUN

( Sun's entry into Tropical Signs or Sayana Rasis )

The times of transit for the four basic years are given below from which the figures for other years can be obtained. The time is in I.S.T. reckoned from *0h* midnight.

| Sign | 1951 | | | 1952* | | | 1953 | | | 1954 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | d | h | | d | h | | d | h | | d | h |
| Aquarius | Jan. | 21 | 2·4 | Jan. | 21 | 8·2 | Jan. | 20 | 13·9 | Jan. | 20 | 19·7 |
| Pisces | Feb. | 19 | 16·7 | Feb. | 19 | 22·5 | Feb. | 19 | 4·2 | Feb. | 19 | 10·0 |
| Aries | Mar. | 21 | 15·9 | Mar. | 20 | 21·7 | Mar. | 21 | 3·5 | Mar. | 21 | 9·3 |
| Taurus | Apr. | 21 | 3·3 | Apr. | 20 | 9·1 | Apr. | 20 | 14 9 | Apr. | 20 | 20·7 |
| Gemini | May | 22 | 2·8 | May | 21 | 8·6 | May | 21 | 14·4 | May | 21 | 20·2 |
| Cancer | June | 22 | 10·9 | June | 21 | 16 7 | June | 21 | 22·5 | June | 22 | 4·3 |
| Leo | July | 23 | 21·8 | July | 23 | 3·6 | July | 23 | 9·4 | July | 23 | 15·2 |
| Virgo | Aug. | 24 | 4·8 | Aug. | 23 | 10·6 | Aug. | 23 | 16·3 | Aug. | 23 | 22·1 |
| Libra | Sept. | 24 | 2·1 | Sept. | 23 | 7·9 | Sept. | 23 | 13·6 | Sept. | 23 | 19·4 |
| Scorpio | Oct. | 24 | 11·1 | Oct. | 23 | 16·9 | Oct. | 23 | 22·6 | Oct. | 24 | 4·4 |
| Sagittarius | Nov. | 23 | 8·4 | Nov. | 22 | 14·1 | Nov. | 22 | 19·9 | Nov. | 23 | 1·7 |
| Capricornus | Dec. | 22 | 21·5 | Dec | 22 | 3 | Dec. | 22 | 9·1 | Dec. | 22 | 14·9 |

N.B.—Sun's entry into *Aries* ( Sayana Mesha ) and *Libra* ( Sayana Tula) are the dates of equinoxes ; its entry into *Cancer* (Sayana Karkata) and *Capricornus* ( Sayana Makara ) are dates of solstices.

### Correction for other years

The corrections for other years are to be applied to the figures for the above four basic years in the same way as indicated in the case of Sun's entry into Nirayana Rasis.

| For years | Correction | For years | Correction | For years | Correction |
|---|---|---|---|---|---|
| | h | | h | | h |
| 1903-1906 | +9·0 | 1955-1958 | −0·7 | 2003-2006 | − 9·7 |
| 1907-1910 | 8·2 | 1959-1962 | 1·5 | 2007-2010 | 10·5 |
| 1911-1914 | 7·5 | 1963-1966 | 2·2 | 2011-2014 | 11·2 |
| 1915-1918 | 6·7 | 1967-1970 | 3·0 | 2015-2018 | 12·0 |
| 1919-1922 | 6·0 | 1971-1974 | 3·7 | 2019-2022 | 12·7 |
| 1923-1926 | 5·2 | 1975-1978 | 4 5 | 2023-2066 | 13·5 |
| 1927-1930 | 4·5 | 1979-1982 | 5·2 | 2027-2030 | 14·2 |
| 1931-1934 | 3·7 | 1983-1986 | 6·0 | 2031-2034 | 15·0 |
| 1935-1938 | 3·0 | 1987-1990 | 6·7 | 2035-2038 | 15·7 |
| 1939-1942 | 2·2 | 1991-1994 | 7·5 | 2039-2042 | 16·5 |
| 1943-1946 | 1·5 | 1995-1998 | 8·2 | 2043-2046 | 17·2 |
| 1947-1950 | +0·7 | 1999-2002 | −9·0 | 2047-2050 | −18·0 |

Further correction for 100 yrs. − *0d* 18·7*h* ; 200 yrs. − *1d* 13·4*h* ; 300 yrs − *2d* 8·2*h*
400 yrs. − *3d* 2·9*h* ; 500 yrs. − *3d* 21·6*h*.

*N.B.*—When the given year is earlier than the span of the above table, then the correction for the century is to be applied *inversely*, i.e., in this case, with a *positive* sign.

## Solar Return or *Varṣapraveś*

The moment in each year when the *nirayaṇa* or sidereal longitude of the Sun becomes equal to the longitude of Sun at the time of birth of the native, is the moment of Solar return or Varshapravesh.

Method of calculation :—Write down the day of week at birth ( 0 for Saturday, 1 for Sunday, etc. ) and with it write the birth time reckoned from 0 to 24 hours counted from $6^h$ A.M. or $0^h$ Midnight or in any other system of time reckoning. Take from the following table the figures given against the age of the person (completed number of years) and add it to the above figures. The result gives the day of week and time of Varṣapravesh. The English date on the day of week so obtained will be very near to the date of birth or will exactly agree with it.

| Year | *d* | *h* | *m* | Year | *d* | *h* | *m* | Year | *d* | *h* | *m* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 6 | 9·2 | 41 | 2 | 12 | 15·7 | 81 | 3 | 18 | 22·1 |
| 2 | 2 | 12 | 18·3 | 42 | 3 | 18 | 24·8 | 82 | 5 | 0 | 31·3 |
| 3 | 3 | 18 | 27·5 | 43 | 5 | 0 | 34·0 | 83 | 6 | 6 | 40·5 |
| 4 | 5 | 0 | 36·6 | 44 | 6 | 6 | 43·1 | 84 | 0 | 12 | 49·6 |
| 5 | 6 | 6 | 45·8 | 45 | 0 | 12 | 52·3 | 85 | 1 | 18 | 58·8 |
| 6 | 0 | 12 | 55·0 | 46 | 1 | 19 | 1·5 | 86 | 3 | 1 | 8·0 |
| 7 | 1 | 19 | 4·1 | 47 | 3 | 1 | 10·6 | 87 | 4 | 7 | 17·1 |
| 8 | 3 | 1 | 13·3 | 48 | 4 | 7 | 19·8 | 88 | 5 | 13 | 26·3 |
| 9 | 4 | 7 | 22·5 | 49 | 5 | 13 | 29·0 | 89 | 6 | 19 | 35·4 |
| 10 | 5 | 13 | 31·6 | 50 | 6 | 19 | 38·1 | 90 | 1 | 1 | 44·6 |
| 11 | 6 | 19 | 40·8 | 51 | 1 | 1 | 47·3 | 91 | 2 | 7 | 53·8 |
| 12 | 1 | 1 | 49·9 | 52 | 2 | 7 | 56·4 | 92 | 3 | 14 | 2·9 |
| 13 | 2 | 7 | 59·1 | 53 | 3 | 14 | 5·6 | 93 | 4 | 20 | 12·1 |
| 14 | 3 | 14 | 8·3 | 54 | 4 | 20 | 14·8 | 94 | 6 | 2 | 21·3 |
| 15 | 4 | 20 | 17·4 | 55 | 6 | 2 | 23·9 | 95 | 0 | 8 | 30·4 |
| 16 | 6 | 2 | 26·6 | 56 | 0 | 8 | 33·1 | 96 | 1 | 14 | 39·6 |
| 17 | 0 | 8 | 35·8 | 57 | 1 | 14 | 42·3 | 97 | 2 | 20 | 48·7 |
| 18 | 1 | 14 | 44·9 | 58 | 2 | 20 | 51·4 | 98 | 4 | 2 | 57·9 |
| 19 | 2 | 20 | 54·1 | 59 | 4 | 3 | 0·6 | 99 | 5 | 9 | 7·1 |
| 20 | 4 | 3 | 3·2 | 60 | 5 | 9 | 9·7 | 100 | 6 | 15 | 16·2 |
| 21 | 5 | 9 | 12·4 | 61 | 6 | 15 | 18·9 | 101 | 0 | 21 | 25·4 |
| 22 | 6 | 15 | 21·6 | 62 | 0 | 21 | 28·1 | 102 | 2 | 3 | 34·5 |
| 23 | 0 | 21 | 30·7 | 63 | 2 | 3 | 37·2 | 103 | 3 | 9 | 43·7 |
| 24 | 2 | 3 | 39·9 | 64 | 3 | 9 | 46·4 | 104 | 4 | 15 | 52·8 |
| 25 | 3 | 9 | 49·1 | 65 | 4 | 15 | 55·6 | 105 | 5 | 22 | 2·0 |
| 26 | 4 | 15 | 58·2 | 66 | 5 | 22 | 4·7 | 106 | 0 | 4 | 11·2 |
| 27 | 5 | 22 | 7·4 | 67 | 0 | 4 | 13·9 | 107 | 1 | 10 | 20·3 |
| 28 | 0 | 4 | 16·5 | 68 | 1 | 10 | 23·0 | 108 | 2 | 16 | 29·5 |
| 29 | 1 | 10 | 25·7 | 69 | 2 | 16 | 32·2 | 109 | 3 | 22 | 38·7 |
| 30 | 2 | 16 | 34·9 | 70 | 3 | 22 | 41·4 | 110 | 5 | 4 | 47·8 |
| 31 | 3 | 22 | 44·0 | 71 | 5 | 4 | 50·5 | 111 | 6 | 10 | 57·0 |
| 32 | 5 | 4 | 53·2 | 72 | 6 | 10 | 59·7 | 112 | 0 | 17 | 6·1 |
| 33 | 6 | 11 | 2·4 | 73 | 0 | 17 | 8·9 | 113 | 1 | 23 | 15·3 |
| 34 | 0 | 17 | 11·5 | 74 | 1 | 23 | 18·0 | 114 | 3 | 5 | 24·5 |
| 35 | 1 | 23 | 20·7 | 75 | 3 | 5 | 27·2 | 115 | 4 | 11 | 33·6 |
| 36 | 3 | 5 | 29·8 | 76 | 4 | 11 | 36·3 | 116 | 5 | 17 | 42·8 |
| 37 | 4 | 11 | 39·0 | 77 | 5 | 17 | 45·5 | 117 | 6 | 23 | 52·0 |
| 38 | 5 | 17 | 48·2 | 78 | 6 | 23 | 54·7 | 118 | 1 | 6 | 1·1 |
| 39 | 6 | 23 | 57·3 | 79 | 1 | 6 | 3·8 | 119 | 2 | 12 | 10·3 |
| 40 | 1 | 6 | 6·5 | 80 | 2 | 12 | 13·0 | 120 | 3 | 18 | 19·4 |

## NEW MOON and FULL MOON

The time of mean New Moon in I.S.T. and the value of corresponding Lunar Anomaly ( $=A$ ) for the four basic years 1951 to 1954 are given below.

| 1951 | | | | 1952 (Leap-year) | | | | 1953 | | | | 1954 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Time | | *A* | | Time | | *A* | | Time | | *A* | | Time | | *A* |
| | d | h | | | d | h | | | d | h | | | d | h | |
| Dec. | 9 | 18·2 | 0·89 | Dec. | 28 | 15·8 | 28·86 | Dec. | 17 | 0·6 | 24 68 | Dec. | 6 | 9·4 | 20·49 |
| Jan. | 8 | 6·9 | 3·04 | Jan. | 27 | 4·5 | 1·01 | Jan. | 15 | 13·3 | 26·83 | Jan. | 4 | 22·1 | 22·64 |
| Feb. | 6 | 19·7 | 5·19 | Feb. | 25 | 17·2 | 3·16 | Feb. | 14 | 2·0 | 28·98 | Feb. | 3 | 10·9 | 24·80 |
| Mar. | 8 | 8·4 | 7·34 | Mar. | 26 | 6·0 | 5·31 | Mar. | 15 | 14·8 | 1·13 | Mar. | 4 | 23·6 | 26·95 |
| Apr. | 6 | 21·2 | 9·50 | Apr. | 24 | 18·7 | 7·46 | Apr. | 14 | 3·5 | 3·28 | Apr. | 3 | 12 3 | 29·10 |
| May | 6 | 9·9 | 11·65 | May | 24 | 7·4 | 9·62 | May | 13 | 16·2 | 5·43 | May | 3 | 1·1 | 1·25 |
| June | 4 | 22·6 | 13·80 | June | 22 | 20·2 | 11·77 | June | 12 | 5·0 | 7·58 | June | 1 | 13·8 | 3·40 |
| July | 4 | 11·4 | 15·95 | July | 22 | 8·9 | 13·92 | July | 11 | 17·7 | 9·73 | July | 1 | 2·5 | 5·55 |
| Aug. | 3 | 0·1 | 18·10 | Aug. | 20 | 21·6 | 16·07 | Aug. | 10 | 6·4 | 11·88 | July | 30 | 15·3 | 7·70 |
| Sept. | 1 | 12·8 | 20·25 | Sept. | 19 | 10·4 | 18·22 | Sept. | 8 | 19·2 | 14·04 | Aug. | 29 | 4·0 | 9·85 |
| Oct. | 1 | 1·6 | 22·40 | Oct. | 18 | 23·1 | 20·37 | Oct. | 8 | 7·9 | 16·19 | Sept. | 27 | 16·7 | 12·00 |
| Oct. | 30 | 14·3 | 24·55 | Nov. | 17 | 11·8 | 22 52 | Nov. | 6 | 20·6 | 18·34 | Oct. | 27 | 5·5 | 14·15 |
| Nov. | 29 | 3·0 | 26·70 | Dec. | 17 | 0·6 | 24·68 | Dec | 6 | 9·4 | 20·49 | Nov. | 25 | 18·2 | 16·31 |
| Dec. | 18 | 15·8 | 28·86 | | — | | | | — | | | Dec. | 25 | 6·9 | 18·46 |

## Correction for other years

| For years | Correction | | | For years | Correction | | | For years | Correction | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (Yrs. 1903-06 to 1947-50) | | | | (Yrs. 1955-58 to 1999-02) | | | | (Yrs. 2003-06 to 2047-50) | | | |
| 1900 | d | h | *A* | 1900 | d | h | *A* | 2000 | d | h | *A* |
| 03-06 | +20 | 8·67 | +14·21 | 55-58 | +15 | 12·71 | +17·57 | 03-06 | +24 | 16·78 | +5·51 |
| 07-10 | 6 | 8·64 | 29·63 | 59-62 | 1 | 12·68 | 2·99 | 07-10 | 10 | 16·75 | 20·93 |
| 11-14 | 21 | 21·35 | 17·20 | 63-66 | 17 | 1·39 | 20·56 | 11-14 | 26 | 5·46 | 8·50 |
| 15-18 | 7 | 21·32 | 2·62 | 67-70 | 3 | 1·36 | 5·98 | 15-18 | 12 | 5·42 | 23·92 |
| 19-22 | 23 | 10·02 | 20·19 | 71-74 | 18 | 14·07 | 23·55 | 19-22 | 27 | 18·13 | 11·49 |
| 23-26 | 9 | 9·99 | 5·61 | 75-78 | 4 | 14·03 | 8·97 | 23-26 | 13 | 18·10 | 26·91 |
| 27-30 | 24 | 22·70 | 23·18 | 79-82 | 20 | 2·74 | 26·54 | 27-30 | 29 | 6·81 | 14·48 |
| 31-34 | 10 | 22·67 | 8·60 | 83-86 | 6 | 2·71 | 11·96 | 31-34 | 15 | 6·78 | 29·90 |
| 35-38 | 26 | 11·38 | 26·17 | 87-90 | 21 | 15·42 | 29·53 | 35-38 | 1 | 6·75 | 15·32 |
| 39-42 | 12 | 11·35 | 11·59 | 91-94 | 7 | 15·39 | 14·95 | 39-42 | 16 | 19·46 | 2·89 |
| 43-46 | 28 | 0·06 | 29·16 | 95-98 | 23 | 4·10 | 2·52 | 43-46 | 2 | 19·43 | 18·31 |
| 47-50 | +14 | 0·03 | +14·58 | 99-02 | +9 | 4·07 | +17·94 | 47-50 | +18 | 8·14 | +5·88 |

*N.B.*—Period of *A* is 30.

Note—For Full Moon *add* 14*d* 18·37*h* to the time of New Moon and 16·08 to the value of '*A*'.

## Correction for Centuries

| | | | d | h | *A* | | d | h | *A* |
|---|---|---|---|---|---|---|---|---|---|
| For | +100 | yrs. | + 4 | 8·12 | +21·29 | or | -25 | 4·62 | -10·85 |
| „ | -100 | „ | +25 | 4·62 | +10·86 | or | - 4 | 8·12 | -21·29 |
| „ | -200 | „ | +20 | 20·50 | +19·56 | or | - 8 | 16·23 | -12·59 |
| „ | -300 | „ | +16 | 12·38 | +28·27 | or | -13 | 0·35 | - 3·88 |
| „ | -400 | „ | +12 | 4·27 | + 6·98 | or | -17 | 8·47 | -25·18 |
| „ | -500 | „ | + 7 | 20·15 | +15·68 | or | -21 | 16·58 | -16·47 |

# Corrections to Time of New Moon and Full Moon

Correction according to *A*

| *A* | Corr. | *A* | Corr. | *A* | Corr. | *A* | Corr. | *A* | Corr. |
|---|---|---|---|---|---|---|---|---|---|
| | h | | h | | h | | h | | h |
| 0·0 | -0·00 | 6·0 | -9·06 | 12·0 | -6·12 | 18·0 | +6·12 | 24·0 | +9·06 |
| 0·5 | 0·94 | 6·5 | 9·39 | 12·5 | 5·23 | 18·5 | 6·93 | 24·5 | 8·63 |
| 1·0 | 1·88 | 7·0 | 9·62 | 13·0 | 4·27 | 19·0 | 7·65 | 25·0 | 8·12 |
| 1·5 | 2·80 | 7·5 | 9·76 | 13·5 | 3·25 | 19·5 | 8·27 | 25·5 | 7·54 |
| 2·0 | 3·70 | 8·0 | 9·78 | 14·0 | 2·19 | 20·0 | 8·79 | 26·0 | 6·88 |
| 2·5 | 4·55 | 8·5 | 9·70 | 14·5 | -1·10 | 20·5 | 9·21 | 26·5 | 6·16 |
| 3·0 | 5·38 | 9·0 | 9·51 | 15·0 | 0·00 | 21·0 | 9·51 | 27·0 | 5·38 |
| 3·5 | 6·16 | 9·5 | 9·21 | 15·5 | +1·10 | 21·5 | 9·70 | 27·5 | 4·55 |
| 4·0 | 6·88 | 10·0 | 8·79 | 16·0 | 2·19 | 22·0 | 9·78 | 28·0 | 3·70 |
| 4·5 | 7·54 | 10·5 | 8·27 | 16·5 | 3·25 | 22·5 | 9·76 | 28·5 | 2·80 |
| 5·0 | 8·12 | 11·0 | 7·65 | 17·0 | 4·27 | 23·0 | 9·62 | 29·0 | 1·88 |
| 5·5 | 8·63 | 11·5 | 6·93 | 17·5 | 5·23 | 23·5 | 9·39 | 29·5 | 0·94 |
| 6·0 | -9·06 | 12·0 | -6·12 | 18·0 | +6·12 | 24·0 | +9·06 | 30·0 | +0·00 |

Correction according to Date

| Date | Corr. | Date | Corr. | Date | Corr. | Date | Corr. |
|---|---|---|---|---|---|---|---|
| | h | | h | | h | | h |
| Jan. 0 | -0·25 | Apr. 0 | +4·14 | July 9 | -0·27 | Oct. 7 | -4·15 |
| 10 | +0·47 | 10 | 4·12 | 19 | 0·96 | 17 | 4·07 |
| 20 | 1·19 | 20 | 3·98 | 29 | 1·62 | 27 | 3·87 |
| 30 | 1·87 | May 0 | 3·72 | Aug. 8 | 2·24 | Nov. 6 | 3·55 |
| Feb. 9 | 2·49 | 10 | 3·35 | 18 | 2·79 | 16 | 3·13 |
| 19 | 3·02 | 20 | 2·91 | 28 | 3·27 | 26 | 2·62 |
| Mar. 1 | 3·47 | 30 | 2·37 | Sept. 7 | 3·66 | Dec. 6 | 2·02 |
| 11 | 3·82 | June 9 | 1·76 | 17 | 3·93 | 16 | 1·35 |
| 21 | 4·04 | 19 | 1·10 | 27 | 4·10 | 26 | -0·64 |
| Apr. 0 | 4·14 | 29 | +0·42 | Oct. 7 | 4·15 | 36 | +0·09 |
| 10 | +4·12 | July 9 | -0·27 | 17 | -4·07 | | |

**Example :** Find the times of N. M., F. M., and the next N. M. occurring in April-May, 1972.

The basic year to be taken is 1952. The time of F. M. is obtained by adding the half-lunation to the preceding N. M.

| | New Moon | | Full Moon | | New Moon | |
|---|---|---|---|---|---|---|
| | d h | *A* | d h | *A* | d h | *A* |
| ( P. 88 ) 1952 ... | Mar. 26-6·00 | 5·31 | Apr. 10-0·37 | 21·39 | Apr. 24-18·70 | 7·46 |
| Corr. for 1971-74 | 18-14·07 | 23·55 | 18-14·07 | 23·55 | 18-14·07 | 23·55 |
| ∴ In 1972 ... | Apr. 13-20·07 | 28·86 | Apr. 28-14·44 | 14·94 | May 13-8·77 | 1·01 |
| Corr. for *A* ... | +2·14 | | -0·13 | | -1·90 | |
| Corr. for date ... | +4·08 | | +3·78 | | +3·22 | |
| | Apr. 14-2·29 | | Apr. 28-18·09 | | May 13-10·09 | |
| ( Ind. Eph. ) | (14-2·02) | | (28-18·23) | | (13-9·63) | |

If desired the following further correction may also be applied—

| Sun - Rahu : | 0° or 180° | 30° 210° | 60°,240° | 90°,270° | 120°,300° | 150° 330° | 180°,360° |
|---|---|---|---|---|---|---|---|
| Correction : | 0 | +0.22h | +0·22h | 0 | -0·22h | -0·22h | 0 |

N.B.—The figures for the correction tables have been taken from LAHIRI'S *Panchanga Darpan.*

## Timing of Tithi of the Siddhantic Panchang

The timings of New Moon, Full Moon and other tithis of the old school Panchangs following Surya-Siddhanta calculations can also be obtained from the foregoing tables by applying some additional corrections as stated below :

First find the time of mean new-moon and the value of *A* for the month in question from page 88, and then apply the following corrections.

### I. Correction to the mean values

Corrections for getting the result of original Surya-Siddhanta calculations are given below. The figures given within brackets under *A* are those of Grahalaghava and Siddhanta Rahasya ( of Bengal ) where some *Bija* corrections were applied in the Lunar anomaly.

| | Corr. to time | Corr. to *A* | | Corr. to time | Corr. to *A* |
|---|---|---|---|---|---|
| | *h* | | | *h* | |
| 2000 A.D. | -0·35 | -0·49 (-0·35) | 1700 A.D. | -0·29 | -0·28 (-0·15) |
| 1900 ,, | -0·33 | -0·42 (-0·28) | 1600 ,, | -0·26 | -0·21 (-0·08) |
| 1800 ,, | -0·31 | -0·35 (-0·21) | 1500 ,, | -0·24 | -0·13 (-0·00) |

A further correction to time, arising out of erroneous determination of *Desāntar* by the earlier observers, is necessary. The value of such correction for the old school Panchangs of Bengal ( which are now taken to relate to Calcutta ) is $+0·19h$.

The times of other tithis may also be obtained in the case of Siddhantic calculation by adding the following values to the N. M. or F. M.

| Tithi | Time d | Time h | *A* | Tithi | Time d | Time h | *A* | Tithi | Time d | Time h | *A* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 23·62 | 1·07 | 6 | 5 | 21·75 | 6·43 | 11 | 10 | 19·87 | 11·79 |
| 2 | 1 | 23·25 | 2·14 | 7 | 6 | 21·37 | 7·50 | 12 | 11 | 19·49 | 12·86 |
| 3 | 2 | 22·87 | 3·22 | 8 | 7 | 21·00 | 8·57 | 13 | 12 | 19·12 | 13·93 |
| 4 | 3 | 22·50 | 4·29 | 9 | 8 | 20·62 | 9·65 | 14 | 13 | 18·74 | 15·00 |
| 5 | 4 | 22·12 | 5·36 | 10 | 9 | 20·24 | 10·72 | 15 | 14 | 18·37 | 16·08 |

### II. Corrections to get the time of true tithi

To the time of mean tithi ( including new-moon and full moon ) thus obtained, the corrections according to the revised value of *A* and the revised date ( i e. date increased by one for this purpose ) are to be applied from the tables on prepage. In addition the following further correction is to be taken ( being the full equation of time ).

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. | 0 | +0·05*h* | Apr. | 0 | +0·07*h* | July | 0 | +0·05*h* | Oct. | 0 | -0·16*h* |
| Feb. | 0 | +0·22 | May | 0 | -0·05 | Aug. | 0 | +0·11 | Nov. | 0 | -0·27 |
| Mar. | 0 | +0·21 | June | 0 | -0·04 | Sept. | 0 | +0·01 | Dec. | 0 | -0·19 |

If desired the following further correction may also be taken for greater approach.

| *A* | Corr. | *A* | *A* | Corr. | *A* | *A* | Corr. | *A* | *A* | Corr. | *A* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | h | | | h | | | h | | | h | |
| 0 | -·00+ | 30 | 4 | -·08+ | 26 | 8 | -·14+ | 22 | 12 | -·20+ | 18 |
| 1 | -·02+ | 29 | 5 | -·09+ | 25 | 9 | -·17+ | 21 | 13 | -·15+ | 17 |
| 2 | -·04+ | 28 | 6 | -·10+ | 24 | 10 | -·20+ | 20 | 14 | -·10+ | 16 |
| 3 | -·06+ | 27 | 7 | -·12+ | 23 | 11 | -·21+ | 19 | 15 | -·00+ | 15 |

## Calculation of Siddhantic Tithi

### EXAMPLE

Find the ending moments of Amavasya ( N. M. ) and tithis S 5 and S 8 of September 1971, according to the old school Bengali Panjika.

| | | | New Moon | | | |
|---|---|---|---|---|---|---|
| | | | | d | h | *A* |
| ( P. 88 ) | ... | For 1951 | Sept. | 1 | 12·80 | 20·25 |
| | Corr. for | 1971-74 | | 18 | 14·07 | 23·55 |
| | | 1971 | Sept. | 20 | 2·87 | 13·80 |
| ( P. 90 ) | Error for | 1971 | | | - 0·34 | - ·33 |
| | Corr. for Desantar | | | | + 0·19 | |
| | | | Sept. | 20 | 2·72 | 13·47 |

For tithis 5 and 8 the mean values are obtained by adding figures for 5 and 8 tithis respectively ( p 90 ) to the above figures for N. M.

| | Amavasya | | | Tithi S 5 | | | Tithi S 8 | | |
|---|---|---|---|---|---|---|---|---|---|
| | d | h | *A* | d | h | *A* | d | h | *A* |
| | Sept. 20 | 2 72 | 13·47 | Sept. 25 | 0·84 | 18·83 | Sept. 27 | 23·72 | 22·04 |
| (P. 89) Corr. for *A* | | −3·31 | | | +7·41 | | | +9·78 | |
| .. for date (+1) | | - 4·00 | | | −4·08 | | | −4·11 | |
| (P. 90) Equ. of time | | - 0·11 | | | −0·13 | | | 0·14 | |
| Further for *A* | | −0·13 | | | +0·21 | | | +0·14 | |
| | Sept. 19 | 19·17 | (I.S.T.) | Sept. 25 | 4·25 | (I S.T) | Sept. 28 | 5·39 | (I.S.T.) |
| (Panjika) | | (18·83) | | | (4·06) | | | (5·50) | |

NOTE : The ending moments of tithis of Siddhantic astronomy do not correspond to the actual moon, and as such they differ from those of modern astronomy by appreciable amounts rising up to six hours on either side ; the difference however becomes minimum near new moon and full moon. The Siddhantic calculations are given here to help examination of calendars of earlier years.

## SUNRISE AND SUNSET

The times of Sunrise and Sunset for any place can be calculated utilising the table of *Chara*, i.e. ascensional differences as given in LAHIRI'S *Indian Ephemeris*. First find the declination of Sun and the apparent noon-time corresponding to the tropical longitude of Sun ( the declination and apparent noon time are almost the same every year corresponding to the tropical longitude ). Then find the duration of half-day ( i.e., $6h \pm$ Chara ) according to the latitude of place and the declination of Sun. Then—

Sunrise = Apprt. noon − half day ; Sunset = Apprt. noon + half day.

The times thus obtained are L. M. T. of place which may be reduced to the Standard Time by applying the necessary correction for reduction of time, if desired.

The Sunrise and Sunset times for a particular latitude ( when in L. M. T. ) or for any place ( in L. M. T. or in Standard Time ) are nearly the same on corresponding English dates at intervals of 4, 8, 12, and 16 years and again after 21, 25, 29, 33, 37, 41 and 45 years.

# MALAMASA and BEGINNING of MAGHA

The dates of beginning of the lunar month of Māgha (the new-moon between Jan 14 and Feb. 12) together with the intercalary or *mala-māsas* occurring in the period 1913 to 2026 A.D. are given below.

| Year | Māgha begins | Malamāsa | Year | Māgha begins | Malamāsa | Year | Māgha begins | Malamāsa |
|---|---|---|---|---|---|---|---|---|
| 1913 | Feb. 6 | — | 1932 | Feb. 6 | - | 1951 | Feb. 6 | - |
| 1914 | Jan. 26 | — | 1933 | Jan. 25 | - | 1952 | Jan. 26 | - |
| 1915 | Jan. 15 | Vaisakha | 1934 | Jan. 15 | Vaisakha | 1953 | Jan. 15 | Vaisakha |
| 1916 | Feb. 3 | — | 1935 | Feb. 3 | - | 1954 | Feb. 3 | - |
| 1917 | Jan. 23 | Asvina* | 1936 | Jan. 24 | Bhadra | 1955 | Jan. 24 | Bhadra |
| 1918 | Feb. 11 | — | 1937 | Feb. 11 | - | 1956 | Feb. 11 | - |
| 1919 | Jan. 31 | — | 1938 | Jan. 31 | - | 1957 | Jan. 30 | - |
| 1920 | Jan. 21 | Sravana | 1939 | Jan. 20 | Sravana | 1958 | Jan. 19 | Sravana |
| 1921 | Feb. 7 | — | 1940 | Feb. 8 | - | 1959 | Feb. 7 | - |
| 1922 | Jan. 28 | — | 1941 | Jan. 27 | - | 1960 | Jan. 28 | - |
| 1923 | Jan. 17 | Jyaistha | 1942 | Jan. 16 | Jyaistha | 1961 | Jan. 16 | Jyaistha |
| 1924 | Feb. 5 | — | 1943 | Feb. 4 | - | 1962 | Feb. 5 | - |
| 1925 | Jan. 24 | — | 1944 | Jan. 25 | - | 1963 | Jan. 25 | (A) |
| 1926 | Jan. 14 | Chaitra | 1945 | Jan. 14 | Chaitra | 1964 | Jan. 14 | Chaitra |
| 1927 | Feb. 2 | — | 1946 | Feb. 2 | - | 1965 | Feb. 1 | - |
| 1928 | Jan. 22 | Sravana | 1947 | Jan. 22 | Sravana | 1966 | Jan 21 | Sravana |
| 1929 | Feb. 9 | — | 1948 | Feb. 10 | - | 1967 | Feb. 9 | - |
| 1930 | Jan. 29 | — | 1949 | Jan. 29 | - | 1968 | Jan. 29 | - |
| 1931 | Jan. 18 | Asadha | 1950 | Jan. 18 | Asadha | 1969 | Jan. 18 | Asadha |
| 1970 | Feb. 6 | — | 1989 | Feb. 6 | - | 2008 | Feb. 7 | - |
| 1971 | Jan. 26 | — | 1990 | Jan. 26 | - | 2009 | Jan. 26 | - |
| 1972 | Jan. 16 | Vaisakha | 1991 | Jan. 15 | Vaisakha | 2010 | Jan. 15 | Vaisakha |
| 1973 | Feb. 3 | — | 1992 | Feb. 3 | - | 2011 | Feb. 3 | - |
| 1974 | Jan. 23 | Bhadra | 1993 | Jan. 22 | Bhadra | 2012 | Jan. 23 | Bhadra |
| 1975 | Feb. 11 | — | 1994 | Feb. 10 | - | 2013 | Feb. 10 | - |
| 1976 | Jan. 31 | — | 1995 | Jan. 30 | - | 2014 | Jan. 30 | - |
| 1977 | Jan. 19 | Sravana** | 1996 | Jan. 20 | Asadha | 2015 | Jan. 20 | Asadha |
| 1978 | Feb. 7 | — | 1997 | Feb. 7 | - | 2016 | Feb. 8 | - |
| 1979 | Jan. 28 | — | 1998 | Jan. 28 | - | 2017 | Jan. 28 | - |
| 1980 | Jan. 17 | Jyaistha | 1999 | Jan. 17 | Jyaistha | 2018 | Jan. 17 | Jyaistha |
| 1981 | Feb. 4 | - | 2000 | Feb. 5 | - | 2019 | Feb. 4 | - |
| 1982 | Jan. 25 | (B) | 2001 | Jan. 24 | Asvina | 2020 | Jan. 24 | Asvina |
| 1983 | Jan. 14 | Phalguna | 2002 | Feb. 12 | - | 2021 | Feb. 11 | - |
| 1984 | Feb. 1 | — | 2003 | Feb. 1 | - | 2022 | Feb. 1 | - |
| 1985 | Jan. 21 | Sravana | 2004 | Jan. 21 | Sravana | 2023 | Jan. 21 | Sravana |
| 1986 | Feb. 9 | — | 2005 | Feb. 8 | - | 2024 | Feb. 9 | - |
| 1987 | Jan. 29 | — | 2006 | Jan. 29 | - | 2025 | Jan. 29 | - |
| 1988 | Jan. 19 | Jyaistha | 2007 | Jan. 19 | Jyaistha | 2026 | Jan. 18 | Jyaistha |

*Bhadra according to S. S. **Asadha according to S. S.

(A) Kartika (Asvina according to S. S.) and next Chaitra are *Mala* and intermediary Margasirsa (Pausa according to S. S.) is *Kshaya*. But here Chaitra is taken as real *Mala* and others are taken to cancel each other.

(B) Asvina and next Phalguna are *Mala* and intermediary Magha is *Kshaya*. Here again Phalguna is taken as real *Mala*.

NOTE: The 19-year cycle has been started from Sun's entry into Dhanistha nakshatra following the practice of Vedanga Jyotisa calendar.

## Beginning of different Lunar Months

The dates of new-moon marking the beginning of different lunar months (of mukhya māna) during the year can approximately be determined from the beginning date of Māgha given for the year.

The beginning date of Māgha is also related to the Malamasa occurring in the year in the following way :—

| Magha begins | Malamasa occurs |
|---|---|
| Jan. 14 ... ... ... | Phalguna or Chaitra |
| Jan. 15—16 ... ... | Vaisakha |
| Jan. 16—17—18—19 ... ... | Jyaistha |
| Jan. 18—19—20 ... ... | Asadha |
| Jan. 19—20—21—22 ... ... | Sravana |
| Jan. 22—23—24 ... ... | Bhadra |
| Jan. 23—24 ... ... ... | Asvina |
| Jan. 25 to Feb. 12 ... ... | *No malamasa* |

The beginning dates of other lunar months can easily be obtained from the following table when that for Magha is known.

**When a Malamasa occurs**

| | | | |
|---|---|---|---|
| Magha begins | | Jan. 14 | to Jan. 24 |
| — | Phalguna† | Feb. 13 | „ Feb. 23 |
| Phalguna* | Chaitra † | Mar. 14 | „ Mar. 24 |
| Chaitra * | Vaisakha † | Apr. 13 | „ Apr. 23 |
| Vaisakha * | Jyaistha † | May 12 | „ May 22 |
| Jyaistha * | Asadha † | June 11 | „ June 21 |
| Asadha * | Sravana † | July 10 | „ July 20 |
| Sravana * | Bhadra † | Aug. 9 | „ Aug 19 |
| Bhadra * | — | Sept. 7 | „ Sept 17 |
| Asvina | | Oct. 7 | „ Oct. 17 |
| Kartika | | Nov. 5 | „ Nov. 15 |
| Margasirsa | | Dec. 5 | „ Dec. 15 |
| Pausa | | Jan. 3 | „ Jan. 13 |
| Magha | | Feb. 2 | „ Feb. 12 |

**When there is no Malamasa**

| | | |
|---|---|---|
| Magha begins | Jan. 25 | to Feb. 12 |
| Phalguna | Feb. 24 | „ Mar. 14 |
| Chaitra | Mar. 25 | „ Apr. 12 |
| Vaisakha | Apr. 24 | „ May 12 |
| Jyaistha | May 23 | „ June 10 |
| Asadha | June 22 | „ July 10 |
| Sravana | July 21 | „ Aug. 8 |
| Bhadra | Aug. 20 | „ Sept. 7 |
| Asvina | Sept. 18 | „ Oct. 6 |
| Kartika | Oct. 18 | „ Nov. 5 |
| Marga. | Nov. 16 | „ Dec. 4 |
| Pausa | Dec. 16 | „ Jan. 3 |
| Magha | Jan. 14 | „ Feb. 1 |

* When the period of intercalary month or Malamasa precedes.
† When the same follows *i. e.* occurs after this month.

*N.B.* (i) When a Malamasa occurs there are two months of the same name, the first one being prefixed by the term *mala* or *adhika* and second one considered as real or *suddha*. The month names stated above relate to the Suddha months.

(ii) The lunar months actually begin from Sukla Pratipad *i e.* from the day next to the day of new-moon.

## ECLIPSES

When the date of an eclipse and the time of corresponding F. M. (for lunar) or N. M. (for solar) are known, then find the longitudes of Sun and Rahu and the value of Moon's Anomaly for the moment. Take 'Sun $-$ Rahu' $= K$ (in degrees) and reduce it into an acute angle by taking $K$, $180^\circ - K$, $K - 180^\circ$ or $360^\circ - K$ as the case may be. Then—

Middle of eclipse = F. M. or N.M. $\mp K$ (considered as min. of time). (Negative sign is to be taken when the original value of $K$ is in the 1st or 3rd quadrant and positive sign for the 2nd or 4th quadrant).

For a *lunar eclipse* take the multiplier ($=m$) according to the value of Lunar Anomaly and obtain $K \times m$.

| Anomaly | 0 | 3·8 | 7·5 | 11·2 | 15·0 | 18·8 | 22·5 | 26·2 | 30·0 |
|---|---|---|---|---|---|---|---|---|---|
| $m$ | ·93 | ·96 | 1·00 | 1·04 | 1·07 | 1·04 | 1·00 | ·96 | ·93 |

Then the half-duration of the lunar eclipse is obtained from $K m$.

| $K m$ ... | 0° | 2° | 4° | 4°·8 | 6° | 8° | 10° | 10°·5 |
|---|---|---|---|---|---|---|---|---|
| Half partial (min.) | 113 | 111 | 105 | 100 | 93 | 73 | 35 | 0 |
| ,, total (min.) | 52 | 47 | 29 | 0 | -- | — | — | — |

The half duration may be multiplied by $m$ if greater accuracy is desired. Now apply the half duration to the middle time of the eclipse for obtaining the beginning and ending times.

For a *solar eclipse* the middle time for a particular place may approximately be obtained by applying further correction to the middle according to the L. M. T. of new-moon.

| L. M. T. (Hour) | 6-00 | 8-00 | 10-00 | 11-00 | 12-00 | 13-00 | 14-00 | 16-00 | 18-00 |
|---|---|---|---|---|---|---|---|---|---|
| Corr. to middle (hr. min.) | -1-30 | -1-37 | -1-13 | -0-42 | 0-00 | +0-42 | +1-13 | +1-37 | +1-30 |

In the case of a solar eclipse when the value of $K$ is in the 1st or 2nd quadrant, *i. e.* when the latitude of Moon is North, then the eclipse is mainly visible in the northern hemisphere, particularly north of the ecliptic When in the 3rd or 4th quadrant, then it is in the South.

(Greater details of eclipse calculation will be given in author's forthcoming book on eclipses)

## SOLAR ECLIPSES

As visible at least from some part of the earth.

Suffixes : p=partial, r=annular, and t=total solar eclipse. rt=annular total.

| Date | | | New Moon (I.S.T.) | Date | | | New Moon (I.S.T.) | Date | | | New Moon (I.S.T.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | h m | | | | h m | | | | h m |
| 1951 | Mar. | 7 | 26 22r | 1960 | Mar. | 27 | 13 7p | 1969 | Mar. | 18 | 10 22r |
| | Sept. | 1 | 18 20r | | Sept. | 20 | 28 43p | | Sept. | 11 | 25·26r |
| 1952 | Feb. | 25 | 14 47t | 1961 | Feb. | 15 | 13 41t | 1970 | Mar. | 7 | 23 13t |
| | Aug. | 20 | 20 52r | | Aug. | 11 | 16 6r | | Aug. | 31 | 27·33r |
| 1953 | Feb. | 14 | 6 41p | 1962 | Feb. | 5 | 5 41t | 1971 | Feb. | 25 | 15·19p |
| | July | 11 | 7 59p | | July | 31 | 17 54r | | July | 22 | 14 45p |
| | Aug. | 9 | 21 40p | 1963 | Jan. | 25 | 19 13r | | Aug. | 20 | 28 24p |
| 1954 | Jan. | 5 | 7 52r | | July | 20 | 26 13t | 1972 | Jan. | 16 | 16 23r |
| | June | 30 | 17 57t | 1964 | Jan. | 14 | 26 15p | | July | 10 | 25·10t |
| | Dec. | 25 | 13 4r | | June | 10 | 9 53p | 1973 | Jan. | 4 | 21 13r |
| 1955 | June | 20 | 9 42t | | July | 9 | 17 1p | | June | 30 | 17 9t |
| | Dec. | 14 | 12 38r | | Dec. | 4 | 6 49p | | Dec. | 24 | 20 38r |
| 1956 | June | 8 | 27 0t | 1965 | May | 30 | 26 44t | 1974 | June | 20 | 10 26t |
| | Dec. | 2 | 13 43p | | Nov. | 23 | 9 41r | | Dec. | 13 | 21 56p |
| 1957 | Apr. | 29 | 29 25r | 1966 | May | 20 | 15 13rt | 1975 | May | 11 | 12 36p |
| | Oct. | 23 | 10 14p | | Nov. | 12 | 19 57t | | Nov. | 3 | 18 35p |
| 1958 | Apr. | 19 | 8 54r | 1967 | May | 9 | 20 27p | 1976 | Apr. | 29 | 15 50r |
| | Oct. | 12 | 26 22t | | Nov. | 2 | 11 18t | | Oct. | 23 | 10 40t |
| 1959 | Apr. | 8 | 9 0r | 1968 | Mar. | 28 | 28 18p | 1977 | Apr. | 18 | 16 7r |
| | Oct. | 2 | 18 2t | | Sept. | 22 | 16 39t | | Oct. | 12 | 26 1t |

## Solar Eclipses—*contd.*

| Date | New Moon (I.S.T.) | Date | New Moon (I.S.T.) | Date | New Moon (I.S.T.) |
|---|---|---|---|---|---|
| | h m | | h m | | h m |
| 1978 Apr. 7 | 20 46p | 2003 May 31 | 9 50r | 2028 July 22 | 8 32t |
| Oct. 2 | 11 11p | Nov. 23 | 28 29t | 2029 Jan. 14 | 22 54p |
| 1979 Feb. 26 | 22 17t | 2004 Apr. 19 | 18 51p | June 12 | 9 21p |
| Aug. 22 | 22 41r | Oct. 14 | 8 18p | July 11 | 21 22p |
| 1980 Feb. 16 | 14 22t | 2005 Apr. 8 | 26 2rt | Dec. 5 | 20 22p |
| Aug. 10 | 24 41r | Oct. 3 | 15 58r | 2030 June 1 | 11 51r |
| 1981 Feb. 4 | 27 44r | 2006 Mar. 29 | 15 46t | Nov. 25 | 12 16t |
| July 31 | 9 23t | Sept. 22 | 17 15r | 2031 May 21 | 12 47r |
| 1982 Jan. 25 | 10 27p | 2007 Mar. 19 | 8 13p | Nov. 14 | 26 40rt |
| June 21 | 17 23p | Sept. 11 | 18 15p | 2032 May 9 | 19 5r |
| July 20 | 24 26p | 2008 Feb. 7 | 9 15r | Nov. 3 | 11 16p |
| Dec. 15 | 14 49p | Aug. 1 | 15 43t | 2033 Mar. 30 | 23 22t |
| 1983 June 11 | 10 18t | 2009 Jan. 26 | 13 26r | Sept. 23 | 19 9p |
| Dec. 4 | 17 56r | July 22 | 8 4t | 2034 Mar. 20 | 15 45t |
| 1984 May 30 | 22 18rt | 2010 Jan. 15 | 12 42r | Sept. 12 | 21 43r |
| Nov. 22 | 28 28t | July 11 | 25 11t | 2035 Mar. 9 | 28 39r |
| 1985 May 19 | 27 12p | 2011 Jan. 4 | 14 33p | Sept. 2 | 7 29t |
| Nov. 12 | 19 50t | June 1 | 26 32p | 2036 Feb. 27 | 10 30p |
| 1986 Apr. 9 | 11 39p | July 1 | 14 24p | July 23 | 15 47p |
| Oct. 3 | 24 25t | Nov. 25 | 11 40p | Aug. 21 | 23 4p |
| 1987 Mar. 29 | 18 16rt | 2012 May 20 | 29 17r | 2037 Jan. 16 | 15 4p |
| Sept. 23 | 8 39r | Nov. 13 | 27 38t | July 13 | 8 2t |
| 1988 Mar. 18 | 7 33t | 2013 May 10 | 6 0r | 2038 Jan. 5 | 19 11r |
| Sept. 11 | 10 20r | Nov. 3 | 18 20t | July 2 | 19 1r |
| 1989 Mar 7 | 23 49p | 2014 Apr. 29 | 11 45r | Dec. 26 | 6 32t |
| Aug. 31 | 11 15p | Oct. 23 | 27 27p | 2039 June 21 | 22 51r |
| 1990 Jan. 26 | 24 51r | 2015 Mar. 20 | 15 7t | Dec. 15 | 22 1t |
| July 22 | 8 24t | Sept. 13 | 12 12p | 2040 May 11 | 8 57p |
| 1991 Jan. 15 | 29 21r | 2016 Mar. 9 | 7 25t | Nov. 4 | 24 26p |
| July 11 | 24 36t | Sept. 1 | 14 34r | 2041 Apr. 30 | 17 16t |
| 1992 Jan. 4 | 28 41r | 2017 Feb. 26 | 20 29r | Oct. 25 | 6 59r |
| June 30 | 17 49t | Aug. 21 | 24 0t | 2042 Apr. 20 | 7 49t |
| Dec. 24 | 6 13p | 2018 Feb. 15 | 26 30p | Oct. 14 | 7 33r |
| 1993 May 21 | 19 38p | July 13 | 8 19p | 2043 Apr. 9 | 24 36t |
| Nov. 13 | 27 4p | Aug. 11 | 15 27p | Oct. 3 | 8 42r |
| 1994 May 10 | 22 37r | 2019 Jan. 6 | 6 58p | 2044 Feb. 28 | 25 42r |
| Nov. 3 | 19 6t | July 2 | 24 46t | Aug. 23 | 6 35t |
| 1995 Apr. 29 | 23 0r | Dec. 26 | 10 43r | 2045 Feb. 16 | 29 20r |
| Oct. 24 | 10 7t | 2020 June 21 | 12 11r | Aug. 12 | 23 9t |
| 1996 Apr. 17 | 28 19p | Dec. 14 | 21 46t | 2046 Feb. 5 | 28 40r |
| Oct. 12 | 19 45p | 2021 June 10 | 16 23r | Aug. 2 | 15 54t |
| 1997 Mar. 9 | 6 46t | Dec. 4 | 13 12t | 2047 Jan. 26 | 7 14p |
| Sept. 1 | 29 22p | 2022 Apr. 30 | 25 57p | June 23 | 16 5p |
| 1998 Feb. 26 | 22 57t | Oct. 25 | 16 19p | July 22 | 28 18p |
| Aug. 22 | 7 33r | 2023 Apr. 20 | 9 42t | Dec. 16 | 29 8p |
| 1999 Feb. 16 | 12 10r | Oct. 14 | 23 25r | 2048 June 11 | 18 19r |
| Aug. 11 | 16 38t | 2024 Apr. 8 | 23 51t | Dec. 5 | 20 59t |
| 2000 Feb. 5 | 18 34p | Oct. 2 | 24 20r | 2049 May 31 | 19 30r |
| July 1 | 24 51p | 2025 Mar. 29 | 16 28p | Nov. 25 | 11 5rt |
| July 31 | 7 55p | Sept. 21 | 25 23p | 2050 May 20 | 26 21rt |
| Dec. 25 | 22 52p | 2026 Feb. 17 | 17 31r | Nov. 14 | 19 10p |
| 2001 June 21 | 17 29t | Aug. 12 | 23 6t | 2051 Apr. 11 | 7 29p |
| Dec. 14 | 26 18r | 2027 Feb. 6 | 21 26r | Oct. 4 | 26 16p |
| 2002 June 10 | 29 17r | Aug. 2 | 15 35t | — | — |
| Dec. 4 | 13 5t | 2028 Jan. 26 | 20 42r | | |

*N.B.*—Eclipses have been taken from *Canon of Eclipses* by OPPOLZER.

# LUNAR ECLIPSES

Suffix : t = total lunar eclipse. Other eclipses are only partial.

| Date | Middle of eclps. (I.S.T.) | Date | Middle of eclps. (I.S.T.) | Date | Middle of eclps. (I.S.T.) |
|---|---|---|---|---|---|
| | h m | | h m | | h m |
| 1952 Feb. 11 | 6 10 | 1986 Apr. 24 | 18 14t | 2021 May 26 | 16 50t |
| Aug. 5 | 25 19 | Oct. 17 | 24 49t | Nov. 19 | 14 33 |
| 1953 Jan. 29 | 29 20t | 1987 Oct. 7 | 9 29 | 2022 May 16 | 9 41t |
| July 26 | 17 49t | 1988 Aug. 27 | 16 36 | Nov. 8 | 16 29t |
| 1954 Jan. 19 | 8 4t | 1989 Feb. 20 | 21 7t | 2023 Oct. 28 | 25 44 |
| July 16 | 5 22 | Aug. 17 | 8 34t | 2024 Sept 18 | 8 17 |
| 1955 Nov. 29 | 22 36 | 1990 Feb. 9 | 24 42t | 2025 Mar. 14 | 12 28t |
| 1956 May 24 | 21 1 | Aug. 6 | 19 37 | Sept. 7 | 23 41t |
| Nov. 18 | 12 17t | 1991 Dec. 21 | 16 4 | 2026 Mar. 3 | 17 6t |
| 1957 May 13 | 28 2t | 1992 June 15 | 10 27 | Aug. 28 | 9 40 |
| Nov. 7 | 19 58t | Dec. 9 | 29 13t | 2028 Jan. 12 | 9 46 |
| 1958 May 3 | 17 41 | 1993 June 4 | 18 30t | July 6 | 23 50 |
| 1959 Mar. 24 | 25 47 | Nov. 29 | 11 56t | Dec. 31 | 22 20t |
| 1960 Mar. 13 | 14 0t | 1994 May 25 | 8 58 | 2029 June 26 | 8 54t |
| Sept. 5 | 16 53t | 1995 Apr. 15 | 17 47 | Dec. 20 | 28 8t |
| 1961 Mar. 2 | 19 2 | 1996 Apr. 4 | 5 39t | 2030 June 15 | 24 5 |
| Aug. 26 | 8 38t | Sept 27 | 8 23t | 2032 Apr. 25 | 20 41t |
| 1963 July 6 | 27 30 | 1997 Mar. 24 | 10 11 | Oct. 18 | 24 31t |
| Dec. 30 | 16 37t | Sept. 16 | 24 17t | 2033 Apr. 14 | 24 42t |
| 1964 June 25 | 6 37t | 1999 July 28 | 17 6 | Oct. 8 | 16 22t |
| Dec. 19 | 8 5t | 2000 Jan. 21 | 10 14t | 2334 Sept. 28 | 8 13 |
| 1965 June 14 | 7 21 | July 16 | 19 25t | 2035 Aug. 19 | 6 39 |
| 1967 Apr. 24 | 17 37t | 2001 Jan. 9 | 25 51t | 2036 Feb. 11 | 27 43t |
| Oct. 18 | 15 46t | July 5 | 20 28 | Aug. 7 | 8 21t |
| 1968 Apr. 13 | 10 19t | 2003 Mar. 16 | 9 9t | 2037 Jan. 31 | 19 32t |
| Oct. 6 | 17 11t | Nov. 9 | 6 48t | July 27 | 9 41 |
| 1970 Feb. 21 | 14 1 | 2004 May 4 | 26 0t | 2039 June 6 | 24 21 |
| Aug. 17 | 8 55 | Oct. 28 | 8 34t | Nov. 30 | 22 24 |
| 1971 Feb. 10 | 13 12t | 2005 Oct. 17 | 17 32 | 2040 May 26 | 17 13t |
| Aug. 6 | 25 14t | 2006 Sept. 7 | 24 23 | Nov. 18 | 24 31t |
| 1972 Jan. 30 | 16 23t | 2007 Mar. 3 | 28 51t | 2041 May 16 | 6 14 |
| July 26 | 12 48 | Aug. 28 | 16 5t | Nov. 8 | 10 2 |
| 1973 Dec. 10 | 7 18 | 2008 Feb. 21 | 8 57t | 2043 Mar. 25 | 20 1t |
| 1974 June 4 | 27 44 | Aug. 16 | 26 37 | Sept. 19 | 7 24t |
| Nov. 29 | 20 46t | 2009 Dec. 31 | 24 55 | 2044 Mar. 13 | 25 8t |
| 1975 May 25 | 11 16t | 2010 June 26 | 17 6 | Sept. 7 | 16 52t |
| Nov. 18 | 27 54t | Dec. 21 | 13 46t | 2045 Mar. 3 | 13 11 |
| 1976 May 13 | 25 20 | 2011 June 15 | 25 41t | 2046 Jan. 22 | 18 34 |
| 1977 Apr. 4 | 9 51 | Dec. 10 | 20 1t | July 18 | 6 31 |
| 1978 Mar. 24 | 21 55t | 2012 June 4 | 16 33 | 2047 Jan. 12 | 6 53t |
| Sept. 16 | 24 33t | 2013 Apr. 25 | 25 40 | July 7 | 16 3t |
| 1979 Mar. 13 | 26 40 | 2014 Apr. 15 | 13 18t | 2048 Jan. 1 | 12 23t |
| Sept. 6 | 16 24t | Oct. 8 | 16 22t | June 26 | 7 27 |
| 1981 July 17 | 10 18 | 2015 Apr. 4 | 17 33t | 2050 May 6 | 27 59t |
| 1982 Jan. 9 | 25 26t | Sept. 28 | 8 17t | Oct. 30 | 8 49t |
| July 6 | 13 0t | 2017 Aug. 7 | 23 48 | 2051 Apr. 26 | 7 45t |
| Dec. 30 | 16 56t | 2018 Jan. 31 | 19 2t | Oct. 19 | 24 39t |
| 1983 June 25 | 13 55 | July 27 | 25 53t | 2052 Oct. 8 | 16 9 |
| 1985 May 4 | 25 27t | 2019 Jan. 21 | 10 43t | 2054 Feb. 22 | 12 20t |
| Oct. 28 | 23 13t | July 16 | 27 2 | Aug. 8 | 14 50t |

# SAVANA CALENDAR

Kaliyuga Savana years, months and days.

| Year | Jan. 0 | | | Mar. 0 | | | June 0 | | | Sept. 0 | | | Dec. 0 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A.D. | y | m | d | y | m | d | y | m | d | y | m | d | y | m | d |
| 1900 | 5073 | 9 | 5 | 73 | 11 | 4 | 74 | 2 | 6 | 74 | 5 | 8 | 74 | 8 | 9 |
| 01 | 5074 | 9 | 10 | 74 | 11 | 9 | 75 | 2 | 11 | 75 | 5 | 13 | 75 | 8 | 14 |
| 02 | 5075 | 9 | 15 | 75 | 11 | 14 | 76 | 2 | 16 | 76 | 5 | 18 | 76 | 8 | 19 |
| 03 | 5076 | 9 | 20 | 76 | 11 | 19 | 77 | 2 | 21 | 77 | 5 | 23 | 77 | 8 | 24 |
| 04 | 5077 | 9 | 25 | 77 | 11 | 25 | 78 | 2 | 27 | 78 | 5 | 29 | 78 | 9 | 0 |
| 05 | 5078 | 10 | 1 | 79 | 0 | 0 | 79 | 3 | 2 | 79 | 6 | 4 | 79 | 9 | 5 |
| 06 | 5079 | 10 | 6 | 80 | 0 | 5 | 80 | 3 | 7 | 80 | 6 | 9 | 80 | 9 | 10 |
| 07 | 5080 | 10 | 11 | 81 | 0 | 10 | 81 | 3 | 12 | 81 | 6 | 14 | 81 | 9 | 15 |
| 08 | 5081 | 10 | 16 | 82 | 0 | 16 | 82 | 3 | 18 | 82 | 6 | 20 | 82 | 9 | 21 |
| 09 | 5082 | 10 | 22 | 83 | 0 | 21 | 83 | 3 | 23 | 83 | 6 | 25 | 83 | 9 | 26 |
| 1910 | 5083 | 10 | 27 | 84 | 0 | 26 | 84 | 3 | 28 | 84 | 7 | 0 | 84 | 10 | 1 |
| 11 | 5084 | 11 | 2 | 85 | 1 | 1 | 85 | 4 | 3 | 85 | 7 | 5 | 85 | 10 | 6 |
| 12 | 5085 | 11 | 7 | 86 | 1 | 7 | 86 | 4 | 9 | 86 | 7 | 11 | 86 | 10 | 12 |
| 13 | 5086 | 11 | 13 | 87 | 1 | 12 | 87 | 4 | 14 | 87 | 7 | 16 | 87 | 10 | 17 |
| 14 | 5087 | 11 | 18 | 88 | 1 | 17 | 88 | 4 | 19 | 88 | 7 | 21 | 88 | 10 | 22 |
| 15 | 5088 | 11 | 23 | 89 | 1 | 22 | 89 | 4 | 24 | 89 | 7 | 26 | 89 | 10 | 27 |
| 16 | 5089 | 11 | 28 | 90 | 1 | 28 | 90 | 5 | 0 | 90 | 8 | 2 | 90 | 11 | 3 |
| 17 | 5091 | 0 | 4 | 91 | 2 | 3 | 91 | 5 | 5 | 91 | 8 | 7 | 91 | 11 | 8 |
| 18 | 5092 | 0 | 9 | 92 | 2 | 8 | 92 | 5 | 10 | 92 | 8 | 12 | 92 | 11 | 13 |
| 19 | 5093 | 0 | 14 | 93 | 2 | 13 | 93 | 5 | 15 | 93 | 8 | 17 | 93 | 11 | 18 |
| 1920 | 5094 | 0 | 19 | 94 | 2 | 19 | 94 | 5 | 21 | 94 | 8 | 23 | 94 | 11 | 24 |
| 21 | 5095 | 0 | 25 | 95 | 2 | 24 | 95 | 5 | 26 | 95 | 8 | 28 | 95 | 11 | 29 |
| 22 | 5096 | 1 | 0 | 96 | 2 | 29 | 96 | 6 | 1 | 96 | 9 | 3 | 97 | 0 | 4 |
| 23 | 5097 | 1 | 5 | 97 | 3 | 4 | 97 | 6 | 6 | 97 | 9 | 8 | 98 | 0 | 9 |
| 24 | 5098 | 1 | 10 | 98 | 3 | 10 | 98 | 6 | 12 | 98 | 9 | 14 | 99 | 0 | 15 |
| 25 | 5099 | 1 | 16 | 99 | 3 | 15 | 99 | 6 | 17 | 99 | 9 | 19 | 00 | 0 | 20 |
| 26 | 5100 | 1 | 21 | 00 | 3 | 20 | 00 | 6 | 22 | 00 | 9 | 24 | 01 | 0 | 25 |
| 27 | 5101 | 1 | 26 | 01 | 3 | 25 | 01 | 6 | 27 | 01 | 9 | 29 | 02 | 1 | 0 |
| 28 | 5102 | 2 | 1 | 02 | 4 | 1 | 02 | 7 | 3 | 02 | 10 | 5 | 03 | 1 | 6 |
| 29 | 5103 | 2 | 7 | 03 | 4 | 6 | 03 | 7 | 8 | 03 | 10 | 10 | 04 | 1 | 11 |
| 1930 | 5104 | 2 | 12 | 04 | 4 | 11 | 04 | 7 | 13 | 04 | 10 | 15 | 05 | 1 | 16 |
| 31 | 5105 | 2 | 17 | 05 | 4 | 16 | 05 | 7 | 18 | 05 | 10 | 20 | 06 | 1 | 21 |
| 32 | 5106 | 2 | 22 | 06 | 4 | 22 | 06 | 7 | 24 | 06 | 10 | 26 | 07 | 1 | 27 |
| 33 | 5107 | 2 | 28 | 07 | 4 | 27 | 07 | 7 | 29 | 07 | 11 | 1 | 08 | 2 | 2 |
| 34 | 5108 | 3 | 3 | 08 | 5 | 2 | 08 | 8 | 4 | 08 | 11 | 6 | 09 | 2 | 7 |
| 35 | 5109 | 3 | 8 | 09 | 5 | 7 | 09 | 8 | 9 | 09 | 11 | 11 | 10 | 2 | 12 |
| 36 | 5110 | 3 | 13 | 10 | 5 | 13 | 10 | 8 | 15 | 10 | 11 | 17 | 11 | 2 | 18 |
| 37 | 5111 | 3 | 19 | 11 | 5 | 18 | 11 | 8 | 20 | 11 | 11 | 22 | 12 | 2 | 23 |
| 38 | 5112 | 3 | 24 | 12 | 5 | 23 | 12 | 8 | 25 | 12 | 11 | 27 | 13 | 2 | 28 |
| 39 | 5113 | 3 | 29 | 13 | 5 | 28 | 13 | 9 | 0 | 14 | 0 | 2 | 14 | 3 | 3 |
| 1940 | 5114 | 4 | 4 | 14 | 6 | 4 | 14 | 9 | 6 | 15 | 0 | 8 | 15 | 3 | 9 |
| 41 | 5115 | 4 | 10 | 15 | 6 | 9 | 15 | 9 | 11 | 16 | 0 | 13 | 16 | 3 | 14 |
| 42 | 5116 | 4 | 15 | 16 | 6 | 14 | 16 | 9 | 16 | 17 | 0 | 18 | 17 | 3 | 19 |
| 43 | 5117 | 4 | 20 | 17 | 6 | 19 | 17 | 9 | 21 | 18 | 0 | 23 | 18 | 3 | 24 |
| 44 | 5118 | 4 | 25 | 18 | 6 | 25 | 18 | 9 | 27 | 19 | 0 | 29 | 19 | 4 | 0 |
| 45 | 5119 | 5 | 1 | 19 | 7 | 0 | 19 | 10 | 2 | 20 | 1 | 4 | 20 | 4 | 5 |
| 46 | 5120 | 5 | 6 | 20 | 7 | 5 | 20 | 10 | 7 | 21 | 1 | 9 | 21 | 4 | 10 |
| 47 | 5121 | 5 | 11 | 21 | 7 | 10 | 21 | 10 | 12 | 22 | 1 | 14 | 22 | 4 | 15 |
| 48 | 5122 | 5 | 16 | 22 | 7 | 16 | 22 | 10 | 18 | 23 | 1 | 20 | 23 | 4 | 21 |
| 1949 | 5123 | 5 | 22 | 23 | 7 | 21 | 23 | 10 | 23 | 24 | 1 | 25 | 24 | 4 | 26 |

*N.B.*—The months of this calendar are of 30 days each and the year is of 360 days. The days are the Kali elapsed days at 24*h* (midnight) of the date.

# SAVANA CALENDAR

Kaliyuga Savana years, months and days—*contd.*

| Year | Jan. 0 | | | Mar. 0 | | | June 0 | | | Sept. 0 | | | Dec. 0 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A.D. | y | m | d | y | m | d | y | m | d | y | m | d | y | m | d |
| 1950 | 5124 | 5 | 27 | 24 | 7 | 26 | 24 | 10 | 28 | 25 | 2 | 0 | 25 | 5 | 1 |
| 51 | 5125 | 6 | 2 | 25 | 8 | 1 | 25 | 11 | 3 | 26 | 2 | 5 | 26 | 5 | 6 |
| 52 | 5126 | 6 | 7 | 26 | 8 | 7 | 26 | 11 | 9 | 27 | 2 | 11 | 27 | 5 | 12 |
| 53 | 5127 | 6 | 13 | 27 | 8 | 12 | 27 | 11 | 14 | 28 | 2 | 16 | 28 | 5 | 17 |
| 54 | 5128 | 6 | 18 | 28 | 8 | 17 | 28 | 11 | 19 | 29 | 2 | 21 | 29 | 5 | 22 |
| 55 | 5129 | 6 | 23 | 29 | 8 | 22 | 29 | 11 | 24 | 30 | 2 | 26 | 30 | 5 | 27 |
| 56 | 5130 | 6 | 28 | 30 | 8 | 28 | 31 | 0 | 0 | 31 | 3 | 2 | 31 | 6 | 3 |
| 57 | 5131 | 7 | 4 | 31 | 9 | 3 | 32 | 0 | 5 | 32 | 3 | 7 | 32 | 6 | 8 |
| 58 | 5132 | 7 | 9 | 32 | 9 | 8 | 33 | 0 | 10 | 33 | 3 | 12 | 33 | 6 | 13 |
| 59 | 5133 | 7 | 14 | 33 | 9 | 13 | 34 | 0 | 15 | 34 | 3 | 17 | 34 | 6 | 18 |
| 1960 | 5134 | 7 | 19 | 34 | 9 | 19 | 35 | 0 | 21 | 35 | 3 | 23 | 35 | 6 | 24 |
| 61 | 5135 | 7 | 25 | 35 | 9 | 24 | 36 | 0 | 26 | 36 | 3 | 28 | 36 | 6 | 29 |
| 62 | 5136 | 8 | 0 | 36 | 9 | 29 | 37 | 1 | 1 | 37 | 4 | 3 | 37 | 7 | 4 |
| 63 | 5137 | 8 | 5 | 37 | 10 | 4 | 38 | 1 | 6 | 38 | 4 | 8 | 38 | 7 | 9 |
| 64 | 5138 | 8 | 10 | 38 | 10 | 10 | 39 | 1 | 12 | 39 | 4 | 14 | 39 | 7 | 15 |
| 65 | 5139 | 8 | 16 | 39 | 10 | 15 | 40 | 1 | 17 | 40 | 4 | 19 | 40 | 7 | 20 |
| 66 | 5140 | 8 | 21 | 40 | 10 | 20 | 41 | 1 | 22 | 41 | 4 | 24 | 41 | 7 | 25 |
| 67 | 5141 | 8 | 26 | 41 | 10 | 25 | 42 | 1 | 27 | 42 | 4 | 29 | 42 | 8 | 0 |
| 68 | 5142 | 9 | 1 | 42 | 11 | 1 | 43 | 2 | 3 | 43 | 5 | 5 | 43 | 8 | 6 |
| 69 | 5143 | 9 | 7 | 43 | 11 | 6 | 44 | 2 | 8 | 44 | 5 | 10 | 44 | 8 | 11 |
| 1970 | 5144 | 9 | 12 | 44 | 11 | 11 | 45 | 2 | 13 | 45 | 5 | 15 | 45 | 8 | 16 |
| 71 | 5145 | 9 | 17 | 45 | 11 | 16 | 46 | 2 | 18 | 46 | 5 | 20 | 46 | 8 | 21 |
| 72 | 5146 | 9 | 22 | 46 | 11 | 22 | 47 | 2 | 24 | 47 | 5 | 26 | 47 | 8 | 27 |
| 73 | 5147 | 9 | 28 | 47 | 11 | 27 | 48 | 2 | 29 | 48 | 6 | 1 | 48 | 9 | 2 |
| 74 | 5148 | 10 | 3 | 49 | 0 | 2 | 49 | 3 | 4 | 49 | 6 | 6 | 49 | 9 | 7 |
| 75 | 5149 | 10 | 8 | 50 | 0 | 7 | 50 | 3 | 9 | 50 | 6 | 11 | 50 | 9 | 12 |
| 76 | 5150 | 10 | 13 | 51 | 0 | 13 | 51 | 3 | 15 | 51 | 6 | 17 | 51 | 9 | 18 |
| 77 | 5151 | 10 | 19 | 52 | 0 | 18 | 52 | 3 | 20 | 52 | 6 | 22 | 52 | 9 | 23 |
| 78 | 5152 | 10 | 24 | 53 | 0 | 23 | 53 | 3 | 25 | 53 | 6 | 27 | 53 | 9 | 28 |
| 79 | 5153 | 10 | 29 | 54 | 0 | 28 | 54 | 4 | 0 | 54 | 7 | 2 | 54 | 10 | 3 |
| 1980 | 5154 | 11 | 4 | 55 | 1 | 4 | 55 | 4 | 6 | 55 | 7 | 8 | 55 | 10 | 9 |
| 81 | 5155 | 11 | 10 | 56 | 1 | 9 | 56 | 4 | 11 | 56 | 7 | 13 | 56 | 10 | 14 |
| 82 | 5156 | 11 | 15 | 57 | 1 | 14 | 57 | 4 | 16 | 57 | 7 | 18 | 57 | 10 | 19 |
| 83 | 5157 | 11 | 20 | 58 | 1 | 19 | 58 | 4 | 21 | 58 | 7 | 23 | 58 | 10 | 24 |
| 84 | 5158 | 11 | 25 | 59 | 1 | 25 | 59 | 4 | 27 | 59 | 7 | 29 | 59 | 11 | 0 |
| 85 | 5160 | 0 | 1 | 60 | 2 | 0 | 60 | 5 | 2 | 60 | 8 | 4 | 60 | 11 | 5 |
| 86 | 5161 | 0 | 6 | 61 | 2 | 5 | 61 | 5 | 7 | 61 | 8 | 9 | 61 | 11 | 10 |
| 87 | 5162 | 0 | 11 | 62 | 2 | 10 | 62 | 5 | 12 | 62 | 8 | 14 | 62 | 11 | 15 |
| 88 | 5163 | 0 | 16 | 63 | 2 | 16 | 63 | 5 | 18 | 63 | 8 | 20 | 63 | 11 | 21 |
| 89 | 5164 | 0 | 22 | 64 | 2 | 21 | 64 | 5 | 23 | 64 | 8 | 25 | 64 | 11 | 26 |
| 1990 | 5165 | 0 | 27 | 65 | 2 | 26 | 65 | 5 | 28 | 65 | 9 | 0 | 66 | 0 | 1 |
| 91 | 5166 | 1 | 2 | 66 | 3 | 1 | 66 | 6 | 3 | 66 | 9 | 5 | 67 | 0 | 6 |
| 92 | 5167 | 1 | 7 | 67 | 3 | 7 | 67 | 6 | 9 | 67 | 9 | 11 | 68 | 0 | 12 |
| 93 | 5168 | 1 | 13 | 68 | 3 | 12 | 68 | 6 | 14 | 68 | 9 | 16 | 69 | 0 | 17 |
| 94 | 5169 | 1 | 18 | 69 | 3 | 17 | 69 | 6 | 19 | 69 | 9 | 21 | 70 | 0 | 22 |
| 95 | 5170 | 1 | 23 | 70 | 3 | 22 | 70 | 6 | 24 | 70 | 9 | 26 | 71 | 0 | 27 |
| 96 | 5171 | 1 | 28 | 71 | 3 | 28 | 71 | 7 | 0 | 71 | 10 | 2 | 72 | 1 | 3 |
| 97 | 5172 | 2 | 4 | 72 | 4 | 3 | 72 | 7 | 5 | 72 | 10 | 7 | 73 | 1 | 8 |
| 98 | 5173 | 2 | 9 | 73 | 4 | 8 | 73 | 7 | 10 | 73 | 10 | 12 | 74 | 1 | 13 |
| 1999 | 5174 | 2 | 14 | 74 | 4 | 13 | 74 | 7 | 15 | 74 | 10 | 17 | 75 | 1 | 18 |

*N.B.*—The months of this calendar are of 30 days each and the year is of 360 days. The days are the Kali elapsed days at 24*h* (midnight) of the date.

## SAVANA CALENDAR

Kaliyuga Savana years, months and days—*contd.*

| Year | Jan. 0 | | | Mar. 0 | | | June 0 | | | Sept. 0 | | | Dec. 0 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A.D. | y | m | d | y | m | d | y | m | d | y | m | d | y | m | d |
| 2000 | 5175 | 2 | 19 | 75 | 4 | 19 | 75 | 7 | 21 | 75 | 10 | 23 | 76 | 1 | 24 |
| 01 | 5176 | 2 | 25 | 76 | 4 | 24 | 76 | 7 | 26 | 76 | 10 | 28 | 77 | 1 | 29 |
| 02 | 5177 | 3 | 0 | 77 | 4 | 29 | 77 | 8 | 1 | 77 | 11 | 3 | 78 | 2 | 4 |
| 03 | 5178 | 3 | 5 | 78 | 5 | 4 | 78 | 8 | 6 | 78 | 11 | 8 | 79 | 2 | 9 |
| 04 | 5179 | 3 | 10 | 79 | 5 | 10 | 79 | 8 | 12 | 79 | 11 | 14 | 80 | 2 | 15 |
| 05 | 5180 | 3 | 16 | 80 | 5 | 15 | 80 | 8 | 17 | 80 | 11 | 19 | 81 | 2 | 20 |
| 06 | 5181 | 3 | 21 | 81 | 5 | 20 | 81 | 8 | 22 | 81 | 11 | 24 | 82 | 2 | 25 |
| 07 | 5182 | 3 | 26 | 82 | 5 | 25 | 82 | 8 | 27 | 82 | 11 | 29 | 83 | 3 | 0 |
| 08 | 5183 | 4 | 1 | 83 | 6 | 1 | 83 | 9 | 3 | 84 | 0 | 5 | 84 | 3 | 6 |
| 09 | 5184 | 4 | 7 | 84 | 6 | 6 | 84 | 9 | 8 | 85 | 0 | 10 | 85 | 3 | 11 |
| 2010 | 5185 | 4 | 12 | 85 | 6 | 11 | 85 | 9 | 13 | 86 | 0 | 15 | 86 | 3 | 16 |
| 11 | 5186 | 4 | 17 | 86 | 6 | 16 | 86 | 9 | 18 | 87 | 0 | 20 | 87 | 3 | 21 |
| 12 | 5187 | 4 | 22 | 87 | 6 | 22 | 87 | 9 | 24 | 88 | 0 | 26 | 88 | 3 | 27 |
| 13 | 5188 | 4 | 28 | 88 | 6 | 27 | 88 | 9 | 29 | 89 | 1 | 1 | 89 | 4 | 2 |
| 14 | 5189 | 5 | 3 | 89 | 7 | 2 | 89 | 10 | 4 | 90 | 1 | 6 | 90 | 4 | 7 |
| 15 | 5190 | 5 | 8 | 90 | 7 | 7 | 90 | 10 | 9 | 91 | 1 | 11 | 91 | 4 | 12 |
| 16 | 5191 | 5 | 13 | 91 | 7 | 13 | 91 | 10 | 15 | 92 | 1 | 17 | 92 | 4 | 18 |
| 17 | 5192 | 5 | 19 | 92 | 7 | 18 | 92 | 10 | 20 | 93 | 1 | 22 | 93 | 4 | 23 |
| 18 | 5193 | 5 | 24 | 93 | 7 | 23 | 93 | 10 | 25 | 94 | 1 | 27 | 94 | 4 | 28 |
| 19 | 5194 | 5 | 29 | 94 | 7 | 28 | 94 | 11 | 0 | 95 | 2 | 2 | 95 | 5 | 3 |
| 2020 | 5195 | 6 | 4 | 95 | 8 | 4 | 95 | 11 | 6 | 96 | 2 | 8 | 96 | 5 | 9 |
| 21 | 5196 | 6 | 10 | 96 | 8 | 9 | 96 | 11 | 11 | 97 | 2 | 13 | 97 | 5 | 14 |
| 22 | 5197 | 6 | 15 | 97 | 8 | 14 | 97 | 11 | 16 | 98 | 2 | 18 | 98 | 5 | 19 |
| 23 | 5198 | 6 | 20 | 98 | 8 | 19 | 98 | 11 | 21 | 99 | 2 | 23 | 99 | 5 | 24 |
| 24 | 5199 | 6 | 25 | 99 | 8 | 25 | 99 | 11 | 27 | 00 | 2 | 29 | 00 | 6 | 0 |
| 25 | 5200 | 7 | 1 | 00 | 9 | 0 | 01 | 0 | 2 | 01 | 3 | 4 | 01 | 6 | 5 |
| 26 | 5201 | 7 | 6 | 01 | 9 | 5 | 02 | 0 | 7 | 02 | 3 | 9 | 02 | 6 | 10 |
| 27 | 5202 | 7 | 11 | 02 | 9 | 10 | 03 | 0 | 12 | 03 | 3 | 14 | 03 | 6 | 15 |
| 28 | 5203 | 7 | 16 | 03 | 9 | 16 | 04 | 0 | 18 | 04 | 3 | 20 | 04 | 6 | 21 |
| 29 | 5204 | 7 | 22 | 04 | 9 | 21 | 05 | 0 | 23 | 05 | 3 | 25 | 05 | 6 | 26 |
| 2030 | 5205 | 7 | 27 | 05 | 9 | 26 | 06 | 0 | 28 | 06 | 4 | 0 | 06 | 7 | 1 |
| 31 | 5206 | 8 | 2 | 06 | 10 | 1 | 07 | 1 | 3 | 07 | 4 | 5 | 07 | 7 | 6 |
| 32 | 5207 | 8 | 7 | 07 | 10 | 7 | 08 | 1 | 9 | 08 | 4 | 11 | 08 | 7 | 12 |
| 33 | 5208 | 8 | 13 | 08 | 10 | 12 | 09 | 1 | 14 | 09 | 4 | 16 | 09 | 7 | 17 |
| 34 | 5209 | 8 | 18 | 09 | 10 | 17 | 10 | 1 | 19 | 10 | 4 | 21 | 10 | 7 | 22 |
| 35 | 5210 | 8 | 23 | 10 | 10 | 22 | 11 | 1 | 24 | 11 | 4 | 26 | 11 | 7 | 27 |
| 36 | 5111 | 8 | 28 | 11 | 10 | 28 | 12 | 2 | 0 | 12 | 5 | 2 | 12 | 8 | 3 |
| 37 | 5212 | 9 | 4 | 12 | 11 | 3 | 13 | 2 | 5 | 13 | 5 | 7 | 13 | 8 | 8 |
| 38 | 5213 | 9 | 9 | 13 | 11 | 8 | 14 | 2 | 10 | 14 | 5 | 12 | 14 | 8 | 13 |
| 39 | 5214 | 9 | 14 | 14 | 11 | 13 | 15 | 2 | 15 | 15 | 5 | 17 | 15 | 8 | 18 |
| 2040 | 5215 | 9 | 19 | 15 | 11 | 19 | 16 | 2 | 21 | 16 | 5 | 23 | 16 | 8 | 24 |
| 41 | 5216 | 9 | 25 | 16 | 11 | 24 | 17 | 2 | 26 | 17 | 5 | 28 | 17 | 8 | 29 |
| 42 | 5217 | 10 | 0 | 17 | 11 | 29 | 18 | 3 | 1 | 18 | 6 | 3 | 18 | 9 | 4 |
| 43 | 5218 | 10 | 5 | 19 | 0 | 4 | 19 | 3 | 6 | 19 | 6 | 8 | 19 | 9 | 9 |
| 44 | 5219 | 10 | 10 | 20 | 0 | 10 | 20 | 3 | 12 | 20 | 6 | 14 | 20 | 9 | 15 |
| 45 | 5220 | 10 | 16 | 21 | 0 | 15 | 21 | 3 | 17 | 21 | 6 | 19 | 21 | 9 | 20 |
| 46 | 5221 | 10 | 21 | 22 | 0 | 20 | 22 | 3 | 22 | 22 | 6 | 24 | 22 | 9 | 25 |
| 47 | 5222 | 10 | 26 | 23 | 0 | 25 | 23 | 3 | 27 | 23 | 6 | 29 | 23 | 10 | 0 |
| 48 | 5223 | 11 | 1 | 24 | 1 | 1 | 24 | 4 | 3 | 24 | 7 | 5 | 24 | 10 | 6 |
| 2049 | 5224 | 11 | 7 | 25 | 1 | 6 | 25 | 4 | 8 | 25 | 7 | 10 | 25 | 10 | 11 |

*N.B.*—3102 B.C. Feb. 17-18, Thurs.-Friday midnight (Ujjain) is the zero date of the series and Feb. 18 is the 1st day.

# SIDEREAL TIME

## Table I

**Sidereal Time at 12*h* noon local mean time for days of year**

( For 82½° E. Longitude and for 1900 A.D. )

| Date | Sid. time |
|---|---|
| | JAN. |
| | *h m s* |
| 1 | 18 41 48 |
| 2 | 18 45 45 |
| 3 | 18 49 42 |
| 4 | 18 53 38 |
| 5 | 18 57 35 |
| 6 | 19 1 31 |
| 7 | 19 5 28 |
| 8 | 19 9 24 |
| 9 | 19 13 21 |
| 10 | 19 17 18 |
| 11 | 19 21 14 |
| 12 | 19 25 11 |
| 13 | 19 29 7 |
| 14 | 19 33 4 |
| 15 | 19 37 0 |
| 16 | 19 40 57 |
| 17 | 19 44 53 |
| 18 | 19 48 50 |
| 19 | 19 52 47 |
| 20 | 19 56 43 |
| 21 | 20 0 40 |
| 22 | 20 4 36 |
| 23 | 20 8 33 |
| 24 | 20 12 29 |
| 25 | 20 16 26 |
| 26 | 20 20 22 |
| 27 | 20 24 19 |
| 28 | 20 28 16 |
| 29 | 20 32 12 |
| 30 | 20 36 9 |
| 31 | 20 40 5 |
| | FEB. |
| 1 | 20 44 2 |
| 2 | 20 47 58 |
| 3 | 20 51 55 |
| 4 | 20 55 51 |
| 5 | 20 59 48 |
| 6 | 21 3 45 |
| 7 | 21 7 41 |
| 8 | 21 11 38 |
| 9 | 21 15 34 |
| 10 | 21 19 31 |
| 11 | 21 23 27 |
| 12 | 21 27 24 |
| 13 | 21 31 20 |
| 14 | 21 35 17 |
| 15 | 21 39 14 |

| Date | Sid. time |
|---|---|
| | FEB. |
| | *h m s* |
| 16 | 21 43 10 |
| 17 | 21 47 7 |
| 18 | 21 51 3 |
| 19 | 21 55 0 |
| 20 | 21 58 56 |
| 21 | 22 2 53 |
| 22 | 22 6 49 |
| 23 | 22 10 46 |
| 24 | 22 14 43 |
| 25 | 22 18 39 |
| 26 | 22 22 36 |
| 27 | 22 26 32 |
| 28 | 22 30 29 |
| 29 | 22 34 25 |
| | MAR. |
| 1 | 22 34 25 |
| 2 | 22 38 22 |
| 3 | 22 42 18 |
| 4 | 22 46 15 |
| 5 | 22 50 12 |
| 6 | 22 54 8 |
| 7 | 22 58 5 |
| 8 | 23 2 1 |
| 9 | 23 5 58 |
| 10 | 23 9 54 |
| 11 | 23 13 51 |
| 12 | 23 17 47 |
| 13 | 23 21 44 |
| 14 | 23 25 41 |
| 15 | 23 29 37 |
| 16 | 23 33 34 |
| 17 | 23 37 30 |
| 18 | 23 41 27 |
| 19 | 23 45 23 |
| 20 | 23 49 20 |
| 21 | 23 53 16 |
| 22 | 23 57 13 |
| 23 | 0 1 10 |
| 24 | 0 5 6 |
| 25 | 0 9 3 |
| 26 | 0 12 59 |
| 27 | 0 16 56 |
| 28 | 0 20 52 |
| 29 | 0 24 49 |
| 30 | 0 28 45 |
| 31 | 0 32 42 |

| Date | Sid. time |
|---|---|
| | APRIL |
| | *h m s* |
| 1 | 0 36 39 |
| 2 | 0 40 35 |
| 3 | 0 44 32 |
| 4 | 0 48 28 |
| 5 | 0 52 25 |
| 6 | 0 56 21 |
| 7 | 1 0 18 |
| 8 | 1 4 14 |
| 9 | 1 8 11 |
| 10 | 1 12 8 |
| 11 | 1 16 4 |
| 12 | 1 20 1 |
| 13 | 1 23 57 |
| 14 | 1 27 54 |
| 15 | 1 31 50 |
| 16 | 1 35 47 |
| 17 | 1 39 43 |
| 18 | 1 43 40 |
| 19 | 1 47 37 |
| 20 | 1 51 33 |
| 21 | 1 55 30 |
| 22 | 1 59 26 |
| 23 | 2 3 23 |
| 24 | 2 7 19 |
| 25 | 2 11 16 |
| 26 | 2 15 12 |
| 27 | 2 19 9 |
| 28 | 2 23 6 |
| 29 | 2 27 2 |
| 30 | 2 30 59 |
| | MAY |
| 1 | 2 34 55 |
| 2 | 2 38 52 |
| 3 | 2 42 48 |
| 4 | 2 46 45 |
| 5 | 2 50 41 |
| 6 | 2 54 38 |
| 7 | 2 58 35 |
| 8 | 3 2 31 |
| 9 | 3 6 28 |
| 10 | 3 10 24 |
| 11 | 3 14 21 |
| 12 | 3 18 17 |
| 13 | 3 22 14 |
| 14 | 3 26 10 |
| 15 | 3 30 7 |
| 16 | 3 34 4 |

| Date | Sid. time |
|---|---|
| | MAY |
| | *h m s* |
| 17 | 3 38 0 |
| 18 | 3 41 56 |
| 19 | 3 45 53 |
| 20 | 3 49 50 |
| 21 | 3 53 46 |
| 22 | 3 57 43 |
| 23 | 4 1 39 |
| 24 | 4 5 36 |
| 25 | 4 9 33 |
| 26 | 4 13 29 |
| 27 | 4 17 26 |
| 28 | 4 21 22 |
| 29 | 4 25 19 |
| 30 | 4 29 15 |
| 31 | 4 33 12 |
| | JUNE |
| 1 | 4 37 8 |
| 2 | 4 41 5 |
| 3 | 4 45 2 |
| 4 | 4 48 58 |
| 5 | 4 52 55 |
| 6 | 4 56 51 |
| 7 | 5 0 48 |
| 8 | 5 4 44 |
| 9 | 5 8 41 |
| 10 | 5 12 37 |
| 11 | 5 16 34 |
| 12 | 5 20 31 |
| 13 | 5 24 27 |
| 14 | 5 28 24 |
| 15 | 5 32 20 |
| 16 | 5 36 17 |
| 17 | 5 40 13 |
| 18 | 5 44 10 |
| 19 | 5 48 6 |
| 20 | 5 52 3 |
| 21 | 5 56 0 |
| 22 | 5 59 56 |
| 23 | 6 3 53 |
| 24 | 6 7 49 |
| 25 | 6 11 46 |
| 26 | 6 15 42 |
| 27 | 6 19 39 |
| 28 | 6 23 35 |
| 29 | 6 27 32 |
| 30 | 6 31 29 |

| Date | Sid. time |
|---|---|
| | JULY |
| | *h m s* |
| 1 | 6 35 25 |
| 2 | 6 39 22 |
| 3 | 6 43 18 |
| 4 | 6 47 15 |
| 5 | 6 51 11 |
| 6 | 6 55 8 |
| 7 | 6 59 4 |
| 8 | 7 3 1 |
| 9 | 7 6 58 |
| 10 | 7 10 54 |
| 11 | 7 14 51 |
| 12 | 7 18 47 |
| 13 | 7 22 44 |
| 14 | 7 26 40 |
| 15 | 7 30 37 |
| 16 | 7 34 33 |
| 17 | 7 38 30 |
| 18 | 7 42 27 |
| 19 | 7 46 23 |
| 20 | 7 50 20 |
| 21 | 7 54 16 |
| 22 | 7 58 13 |
| 23 | 8 2 9 |
| 24 | 8 6 6 |
| 25 | 8 10 2 |
| 26 | 8 13 59 |
| 27 | 8 17 56 |
| 28 | 8 21 52 |
| 29 | 8 25 49 |
| 30 | 8 29 45 |
| 31 | 8 33 42 |
| | AUG. |
| 1 | 8 37 38 |
| 2 | 8 41 35 |
| 3 | 8 45 31 |
| 4 | 8 49 28 |
| 5 | 8 53 25 |
| 6 | 8 57 21 |
| 7 | 9 1 18 |
| 8 | 9 5 14 |
| 9 | 9 9 11 |
| 10 | 9 13 7 |
| 11 | 9 17 4 |
| 12 | 9 21 0 |
| 13 | 9 24 57 |
| 14 | 9 28 54 |
| 15 | 9 32 50 |

## Sidereal Time

Table I—*contd.*

| Date | Sid. time | Date | Sid. time | Date | Sid. time | Date | Sid. time | Date | Sid. time |
|---|---|---|---|---|---|---|---|---|---|
| | AUGUST | | SEPT. | | OCT. | | NOV. | | DEC. |
| | h m s | | h m s | | h m s | | h m s | | h m s |
| 16 | 9 36 47 | 12 | 11 23 14 | 9 | 13 9 41 | 5 | 14 56 8 | 2 | 16 42 35 |
| 17 | 9 40 43 | 13 | 11 27 10 | 10 | 13 13 37 | 6 | 15 0 4 | 3 | 16 46 31 |
| 18 | 9 44 40 | 14 | 11 31 7 | 11 | 13 17 34 | 7 | 15 4 1 | 4 | 16 50 28 |
| 19 | 9 48 36 | 15 | 11 35 3 | 12 | 13 21 30 | 8 | 15 7 57 | 5 | 16 54 24 |
| 20 | 9 52 33 | 16 | 11 39 0 | 13 | 13 25 27 | 9 | 15 11 54 | 6 | 16 58 21 |
| 21 | 9 56 29 | 17 | 11 42 56 | 14 | 13 29 23 | 10 | 15 15 50 | 7 | 17 2 17 |
| 22 | 10 0 26 | 18 | 11 46 53 | 15 | 13 33 20 | 11 | 15 19 47 | 8 | 17 6 14 |
| 23 | 10 4 23 | 19 | 11 50 50 | 16 | 13 37 16 | 12 | 15 23 43 | 9 | 17 10 10 |
| 24 | 10 8 19 | 20 | 11 54 46 | 17 | 13 41 13 | 13 | 15 27 40 | 10 | 17 14 7 |
| 25 | 10 12 16 | 21 | 11 58 43 | 18 | 13 45 10 | 14 | 15 31 37 | 11 | 17 18 4 |
| 26 | 10 16 12 | 22 | 12 2 39 | 19 | 13 49 6 | 15 | 15 35 33 | 12 | 17 22 0 |
| 27 | 10 20 9 | 23 | 12 6 36 | 20 | 13 53 3 | 16 | 15 39 30 | 13 | 17 25 57 |
| 28 | 10 24 5 | 24 | 12 10 32 | 21 | 13 56 59 | 17 | 15 43 26 | 14 | 17 29 53 |
| 29 | 10 28 2 | 25 | 12 14 29 | 22 | 14 0 56 | 18 | 15 47 23 | 15 | 17 33 50 |
| 30 | 10 31 58 | 26 | 12 18 25 | 23 | 14 4 52 | 19 | 15 51 19 | 16 | 17 37 46 |
| 31 | 10 35 55 | 27 | 12 22 22 | 24 | 14 8 49 | 20 | 15 55 16 | 17 | 17 41 43 |
| | | 28 | 12 26 19 | 25 | 14 12 45 | 21 | 15 59 12 | 18 | 17 45 39 |
| | SEPT. | 29 | 12 30 15 | 26 | 14 16 42 | 22 | 16 3 9 | 19 | 17 49 36 |
| | | 30 | 12 34 12 | 27 | 14 20 39 | 23 | 16 7 6 | 20 | 17 53 33 |
| 1 | 10 39 52 | | | 28 | 14 24 35 | 24 | 16 11 2 | 21 | 17 57 29 |
| 2 | 10 43 48 | | OCT. | 29 | 14 28 32 | 25 | 16 14 59 | 22 | 18 1 26 |
| 3 | 10 47 45 | | | 30 | 14 32 28 | 26 | 16 18 55 | 23 | 18 5 22 |
| 4 | 10 51 41 | 1 | 12 38 8 | 31 | 14 36 25 | 27 | 16 22 52 | 24 | 18 9 19 |
| 5 | 10 55 38 | 2 | 12 42 5 | | | 28 | 16 26 48 | 25 | 18 13 15 |
| 6 | 10 59 34 | 3 | 12 46 1 | | NOV. | 29 | 16 30 45 | 26 | 18 17 12 |
| 7 | 11 3 31 | 4 | 12 49 58 | | | 30 | 16 34 41 | 27 | 18 21 8 |
| 8 | 11 7 27 | 5 | 12 53 54 | 1 | 14 40 21 | | | 28 | 18 25 5 |
| 9 | 11 11 24 | 6 | 12 57 51 | 2 | 14 44 18 | | DEC. | 29 | 18 29 2 |
| 10 | 11 15 21 | 7 | 13 1 48 | 3 | 14 48 14 | | | 30 | 18 32 58 |
| 11 | 11 19 17 | 8 | 13 5 44 | 4 | 14 52 11 | 1 | 16 38 38 | 31 | 18 36 55 |

### *RULE*

The Sidereal Time for 12*h* noon Local Mean Time for the place is obtained by adding figures from Tables I, II and II(a). The given time of the day is first to be converted into L. M. T. of the place and then the time-interval from 12*h* noon L. M. T. is to be obtained. This time-interval increased by the addition of 10 secs. per hour or 0*m* 59*s* for every 6 hours is to be added to or subtracted from the sidereal time for 12 noon according as the given moment is after or before the noon time. The result is the sidereal time for the moment.

# SIDEREAL TIME

## Table II—Correction for different years

| Year | Correction | Year | Correction | Year | Correction | Year | Correction | Year | Correction |
|---|---|---|---|---|---|---|---|---|---|
| | m s | | m s | | m s | | m s | | m s |
| 1900 | 0 0 | 1931 | −2 1 | 1961 | +0 53 | 1992§ | −1 7 | 2022 | +1 47 |
| 1901 | −0 57 | 1932§ | −2 58 | 1962 | −0 4 | 1992† | +2 50 | 2023 | +0 49 |
| 1902 | −1 55 | 1932† | +0 59 | 1963 | −1 2 | 1993 | +1 52 | 2024§ | −0 8 |
| 1903 | −2 52 | 1933 | +0 1 | 1964§ | −1 59 | 1994 | +0 55 | 2024† | +3 49 |
| 1904§ | −3 49 | 1934 | −0 56 | 1964† | +1 58 | 1995 | −0 3 | 2025 | +2 52 |
| 1904† | +0 7 | 1935 | −1 53 | 1965 | +1 0 | 1996§ | −1 0 | 2026 | +1 55 |
| 1905 | −0 50 | 1936§ | −2 50 | 1966 | +0 3 | 1996† | +2 57 | 2027 | +0 57 |
| 1906 | −1 48 | 1936† | +1 6 | 1967 | −0 54 | 1997 | +1 59 | 2028§ | 0 0 |
| 1907 | −2 45 | 1937 | +0 9 | 1968§ | −1 51 | 1998 | +1 2 | 2028† | +3 56 |
| 1908§ | −3 42 | 1938 | −0 49 | 1968† | +2 5 | 1999 | +0 5 | 2029 | +2 59 |
| 1908† | +0 14 | 1939 | −1 46 | 1969 | +1 8 | 2000§ | −0 52 | 2030 | +2 2 |
| 1909 | −0 43 | 1940§ | −2 43 | 1970 | +0 10 | 2000† | +3 5 | 2031 | +1 4 |
| 1910 | −1 40 | 1940† | +1 13 | 1971 | −0 47 | 2001 | +2 7 | 2032§ | +0 7 |
| 1911 | −2 38 | 1941 | +0 16 | 1972§ | −1 44 | 2002 | +1 10 | 2032† | +4 4 |
| 1912§ | −3 35 | 1942 | −0 41 | 1972† | +2 13 | 2003 | +0 13 | 2033 | +3 7 |
| 1912† | +0 22 | 1943 | −1 38 | 1973 | +1 15 | 2004§ | −0 45 | 2034 | +2 10 |
| 1913 | −0 36 | 1944§ | −2 36 | 1974 | +0 18 | 2004† | +3 12 | 2035 | +1 12 |
| 1914 | −1 33 | 1944† | +1 21 | 1975 | −0 39 | 2005 | +2 15 | 2036§ | +0 15 |
| 1915 | −2 30 | 1945 | +0 24 | 1976§ | −1 36 | 2006 | +1 18 | 2036† | +4 11 |
| 1916§ | −3 27 | 1946 | −0 34 | 1976† | +2 20 | 2007 | +0 21 | 2037 | +3 14 |
| 1916† | +0 29 | 1947 | −1 31 | 1977 | +1 23 | 2008§ | −0 37 | 2038 | +2 17 |
| 1917 | −0 28 | 1948§ | −2 28 | 1978 | +0 25 | 2008† | +3 19 | 2039 | +1 19 |
| 1918 | −1 25 | 1948† | +1 28 | 1979 | −0 32 | 2009 | +2 22 | 2040§ | +0 22 |
| 1919 | −2 23 | 1949 | +0 31 | 1980§ | −1 29 | 2010 | +1 25 | 2040† | +4 18 |
| 1920§ | −3 20 | 1950 | −0 26 | 1980† | +2 28 | 2011 | +0 28 | 2041 | +3 21 |
| 1920† | +0 37 | 1951 | −1 24 | 1981 | +1 30 | 2012§ | −0 30 | 2042 | +2 24 |
| 1921 | −0 21 | 1952§ | −2 21 | 1982 | +0 33 | 2012† | +3 27 | 2043 | +1 26 |
| 1922 | −1 18 | 1952† | +1 36 | 1983 | −0 25 | 2013 | +2 30 | 2044§ | +0 29 |
| 1923 | −2 15 | 1953 | +0 38 | 1984§ | −1 22 | 2014 | +1 33 | 2044† | +4 26 |
| 1924§ | −3 12 | 1954 | −0 19 | 1984† | +2 35 | 2015 | +0 35 | 2045 | +3 29 |
| 1924† | +0 44 | 1955 | −1 16 | 1985 | +1 37 | 2016§ | −0 22 | 2046 | +2 32 |
| 1925 | −0 13 | 1956§ | −2 13 | 1986 | +0 40 | 2016† | +3 34 | 2047 | +1 34 |
| 1926 | −1 11 | 1956† | +1 43 | 1987 | −0 17 | 2017 | +2 37 | 2048§ | +0 37 |
| 1927 | −2 8 | 1957 | +0 46 | 1988§ | −1 14 | 2018 | +1 40 | 2048† | +4 33 |
| 1928§ | −3 5 | 1958 | −0 12 | 1988† | +2 42 | 2019 | +0 42 | 2049 | +3 36 |
| 1928† | +0 51 | 1959 | −1 9 | 1989 | +1 45 | 2020§ | −0 15 | 2050 | +2 39 |
| 1929 | −0 6 | 1960§ | −2 6 | 1990 | +0 47 | 2020† | +3 41 | 2051 | +1 41 |
| 1930 | −1 3 | 1960† | +1 51 | 1991 | −0 10 | 2021 | +2 44 | — | — |

§ For January and February only.

† For March to December.

## Table II (a)—Correction for other centuries

Corrections to be applied to the Sidereal Time of any date of the years from 1901 to 2050 to get the Sidereal Time for the same date of the Standard Calendar of earlier centuries are given below.

Correction for:—100 yrs. = −3*m* 5*s*; −200 yrs. = −6*m* 9*s*

−300 yrs. = −9*m* 14*s*; −400 yrs. = −12*m* 18*s*; −500 yrs. = −15*m* 23*s*.

# NIRAYANA LAGNA or ASCENDANT

According to the Sidereal Time in hours and minutes

| Lagna (Ascendant) | LATITUDE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0° | 10° | 20° | 30° | 40° | 50° | 60° | 66°33′ | 70° |
| | h m | h m | h m | h m | h m | h m | h m | h m | h m |
| Mesha 0° | 19 27 | 19 20 | 19 13 | 19 05 | 18 56 | 18 43 | 18 22 | 18 00 | 17 42 |
| Vrisha 0° | 21 24 | 21 10 | 20 56 | 20 39 | 20 18 | 19 49 | 19 01 | 18 00 | 16 53 |
| Mithuna 0° | 23 31 | 23 14 | 22 55 | 22 34 | 22 07 | 21 28 | 20 19 | 18 00 | 15 48 (*a*) |
| Mith. 6° 35′ | 24 00 | 23 42 | 23 24 | 23 02 | 22 35 | 21 56 | 20 45 | 18 00 | — |
| Karkata 0° | 1 41 | 1 25 | 1 08 | 0 49 | 0 24 | 23 49 | 22 50 | 21 22 | 20 12 (*b*) |
| Simha 0° | 3 43 | 3 33 | 3 23 | 3 10 | 2 56 | 2 35 | 2 03 | 1 26 | 0 54 |
| Kanya 0° | 5 36 | 5 34 | 5 32 | 5 30 | 5 27 | 5 23 | 5 17 | 5 11 | 5 1 |
| Kanya 6° 35′ | 6 00 | 6 00 | 6 00 | 6 00 | 6 00 | 6 00 | 6 00 | 6 00 | 6 00 |
| Tula 0° | 7 27 | 7 33 | 7 40 | 7 48 | 7 57 | 8 10 | 8 31 | 8 53 | 9 11 |
| Vrischika 0° | 9 24 | 9 38 | 9 52 | 10 09 | 10 30 | 10 59 | 11 47 | 12 48 | 13 55 |
| Dhanus 0° | 11 31 | 11 49 | 12 07 | 12 29 | 12 56 | 13 35 | 14 44 | 17 03 | 15 48 (*c*) |
| Dhan. 6° 35′ | 12 00 | 12 18 | 12 36 | 12 58 | 13 25 | 14 04 | 15 15 | 18 00 | — |
| Makara 0° | 13 41 | 13 57 | 14 14 | 14 33 | 14 58 | 15 32 | 16 32 | 18 00 | 20 12 (*d*) |
| Kumbha 0° | 15 43 | 15 53 | 16 03 | 16 15 | 16 30 | 16 51 | 17 23 | 18 00 | 18 31 |
| Mina 0° | 17 36 | 17 38 | 17 40 | 17 42 | 17 45 | 17 48 | 17 51 | 18 00 | 18 11 |
| Mina 6° 35′ | 18 00 | 18 00 | 18 00 | 18 00 | 18 00 | 18 00 | 18 00 | 18 00 | 18 00 |
| Mesha 0° | 19 27 | 19 20 | 19 13 | 19 05 | 18 56 | 18 43 | 18 22 | 18 00 | 17 42 |

**Note :** For 70° latitude (*a*) = The given Sidereal Time relates to Vrisha 5° 50′, (*b*) = Karkata 7° 20′, (*c*) = Vrischika 5° 50′ and (*d*) Makara 7° 20′.

From the point (*b*) to (*c*) the Lagna increases with increase of Sidereal time as usual, but from (*d*) to (*a*) it decreases with the increase of S.T.

The portions of the zodiac from the point (*a*) to (*b*) and again from (*c*) to (*d*) never become Lagna for 70°N. latitude, as the former portion is always above the horizon and the latter always below it at that latitude.

**Rule:** (1) The *Lagna* obtained from the above two tables is *Nirayana.* To derive tropical or *Sayana Lagna* add 23° 25′ to the above degree of Lagna.

(2) The latitudes given above are northern latitudes. For places in southern latitude first *add* 12*h* to the S. T. for the moment and find the Lagna according to this sidereal time. Then *add* 6 (six) signs or *rāsis* to the sign of the Lagna so obtained.

## Correction for years

The following correction is to be applied to the degree of Ascendant for different years.

| | ° ′ | | ° ′ | | ′ | | ′ | | ′ |
|---|---|---|---|---|---|---|---|---|---|
| 1500 | +6 32 | 1700 | +3 44 | 1900 | +57 | 1980 | −10 | 2020 | −43 |
| 1550 | +5 50 | 1750 | +3 2 | 1950 | +15 | 1990 | −18 | 2030 | −52 |
| 1600 | +5 8 | 1800 | +2 21 | 1960 | + 7 | 2000 | −26 | 2040 | −60 |
| 1650 | +4 26 | 1850 | +1 39 | 1970 | − 1 | 2010 | −35 | 2050 | −68 |

# TITHI, NAKSHATRA AND YOGA

When the *nirayana* true longitudes of the Sun and Moon are known, then the *tithi*, *nakshatra* and *yoga* for that time can be determined in the following way.

For Tithi find Moon *minus* Sun.

For Nakshatra take Moon only.

For Yoga find Moon *plus* Sun.

**Tithi**—The longitude difference 'Moon – Sun' in signs, degrees and minutes gives the *Tithi* for the moment as shown in the table below.

| Diff. | Tithi | Diff. | Tithi | Diff. | Tithi | Diff. | Tithi | Diff. | Tithi |
|---|---|---|---|---|---|---|---|---|---|
| s ° | | s ° | | s ° | | s ° | | s ° | |
| 0 12 | S 1 | 2 24 | S 7 | 5 6 | S 13 | 7 18 | K 4 | 10 0 | K 10 |
| 0 24 | 2 | 3 6 | 8 | 5 18 | 14 | 8 0 | 5 | 10 12 | 11 |
| 1 6 | 3 | 3 18 | 9 | 6 0 | S 15 | 8 12 | 6 | 10 24 | 12 |
| 1 18 | 4 | 4 0 | 10 | 6 12 | K 1 | 8 24 | 7 | 11 6 | 13 |
| 2 0 | 5 | 4 12 | 11 | 6 24 | 2 | 9 6 | 8 | 11 18 | 14 |
| 2 12 | S 6 | 4 24 | S 12 | 7 6 | K 3 | 9 18 | K 9 | 12 0 | K 30 |

When the difference of longitudes becomes equal to the figure given against the number of Tithi, then the Tithi is completed, *i.e.* it ends at that time and the next Tithi begins. When it is less than the figure given in the table, then subtract it from the given figure. This is called *residue*, which multiplied by 2 and degree considered as hour gives an approximate time after which the Tithi ends.

**Nakshatra and Yoga** –The *Nakshatra* for the moment is to be determined from the longitude of Moon and *Yoga* from the longitude of Moon *plus* Sun utilising the table below. Here also the Nakshatra or Yoga is completed when the longitude or sum of longitudes becomes equal to the figure given against the name of the Nakshatra or Yoga concerned. When it is less, then find the residue as in the case of tithi calculation, and multiply the same by 2 to get an approximate time of ending of the phenomena.

| Long. | Nakshatra | Yoga | Long. | Nakshatra | Yoga |
|---|---|---|---|---|---|
| s ° ′ | | | s ° ′ | | |
| 0 13 20 | 1 Asvini | 1 Viskumbha | 6 20 0 | 15 Svati | 15 Vajra |
| 0 26 40 | 2 Bharani | 2 Priti | 7 3 20 | 16 Visakha | 16 Siddhi(Asrik) |
| 1 10 0 | 3 Krittika | 3 Ayusman | 7 16 40 | 17 Anuradha | 17 Vyatipata |
| 1 23 20 | 4 Rohini | 4 Saubhagya | 8 0 0 | 18 Jyestha | 18 Variyan |
| 2 6 40 | 5 Mrigasirsas | 5 Sobhana | 8 13 20 | 19 Mula | 19 Parigha |
| 2 20 0 | 6 Ardra | 6 Atiganda | 8 26 40 | 20 Purvasad. | 20 Siva |
| 3 3 20 | 7 Punarvasu | 7 Sukarma | 9 10 0 | 21 Uttarasad. | 21 Siddha |
| 3 16 40 | 8 Pushya | 8 Dhriti | 9 23 20 | 22 Sravana | 22 Sadhya |
| 4 0 0 | 9 Aslesha | 9 Sula | 10 6 40 | 23 Dhanistha | 23 Subha |
| 4 13 20 | 10 Magha | 10 Ganda | 10 20 0 | 24 Satabhisaj | 24 Sukla (Sukra) |
| 4 26 40 | 11 P. Phalguni | 11 Vriddhi | 11 3 20 | 25 P. Bhadra. | 25 Brahma |
| 5 10 0 | 12 U. Phalguni | 12 Dhruva | 11 16 40 | 26 U. Bhadra. | 26 Indra |
| 5 23 20 | 13 Hasta | 13 Vyaghata | 12 0 0 | 27 Revati | 27 Vaidhriti |
| 6 6 40 | 14 Chitra | 14 Harshana | | | |

## CALCULATION OF TIME

For exact calculation of ending time of the phenomena the daily motion (= *m*) of the function is to be utilised, and for obtaining a precise value of the timing interpolation correction is also to be applied. For this purpose first obtain the value of the function *T* (= moon − sun), *N* (= moon only) or *Y* (= moon + sun) as the case may be, for a fixed time say **5-30** A. M. of the previous day, of the day in question, for the following day and the next following day. From these four positions find the daily motion of the function for the previous day (= *l*), for the day in question (= *m*) and for the following day (= *n*).

Find the residue as mentioned earlier and take it in degrees with two places of decimal (min. of arc divided by 60 gives the decimal of a degree). Take the multiplier from the following table against the daily motion *m* of the function. Then find--

Residue × Multiplier = Time interval.*

The decimal portion of time obtained above multiplied by 60 gives the minute after the hour. This time interval added to the initial epoch *viz*. 5-30 A. M. gives the ending moment of the function.

Multiplier according to Daily Motion

| Min. | 10° | 11° | 12° | 13° | 14° | 15° | 16° |
|---|---|---|---|---|---|---|---|
| ′ ° 0 (0·0) | | 2·182 | 2·000 | 1·846 | 1·714 | 1·600 | 1·500 |
| 6 (0·1) | | 2·162 | 1·983 | 1·832 | 1·702 | 1·589 | 1·491 |
| 12 (0·2) | | 2·143 | 1·967 | 1·818 | 1·690 | 1·579 | 1·481 |
| 18 (0·3) | | 2·124 | 1·951 | 1·805 | 1·678 | 1·569 | 1·472 |
| 24 (0·4) | | 2·105 | 1·935 | 1·791 | 1·667 | 1·558 | 1·463 |
| 30 (0·5) | | 2·087 | 1·920 | 1·778 | 1·655 | 1·548 | 1·455 |
| 36 (0·6) | | 2·069 | 1·905 | 1·765 | 1·644 | 1·538 | |
| 42 (0·7) | 2·243 | 2·051 | 1 890 | 1·752 | 1·633 | 1·529 | |
| 48 (0·8) | 2·222 | 2·034 | 1·875 | 1·739 | 1·622 | 1·519 | |
| 54 (0·9) | 2·202 | 2·017 | 1·860 | 1·727 | 1·611 | 1·509 | |
| Subtract for | | | | | | | |
| ′ ° 1 (0·02) | ·003 | ·003 | ·003 | ·002 | ·002 | ·002 | ·002 |
| 2 (0·03) | ·007 | ·006 | ·005 | ·004 | ·004 | ·003 | ·003 |
| 3 (0·05) | ·010 | ·009 | ·008 | ·007 | ·006 | ·005 | ·005 |
| 4 (0·07) | ·014 | ·012 | ·010 | ·009 | ·008 | ·007 | ·006 |
| 5 (0·08) | ·017 | ·015 | ·013 | ·011 | ·010 | ·008 | ·008 |
| 6 (0·10) | ·021 | ·018 | ·015 | ·013 | ·011 | ·010 | ·009 |

## Interpolation

For obtaining a precise value of the timing, take the correction due to 'second differences'. For this purpose calculate the increase of the daily motion after alternate days, *i.e.* take $(n-l)$ with $+ve$ or $-ve$ sign as the case may be. Against the values of the time-interval already

* The time can also be calculated utilising the Diurnal Proportional Logarithm given in *Indian Ephemeris* by subtracting from log residue the log daily motion and taking the antilog in time.

obtained and of $(n-l)$ take the *'correction in arc'* from the following table, and multiply it by the *multiplier* of the previous calculation taken here with only one place of decimal.

Correction in arc × Multiplier = Correction in min. of time.

This is to be applied to the time-interval or the ending moment already obtained according to the sign of $(n-l)$.

Correction in Arc due to Second Differences

| Time interval | $(n-l)$ | | | | | | | | Time interval |
|---|---|---|---|---|---|---|---|---|---|
| | 8′ | 16′ | 24′ | 32′ | 40′ | 48′ | 56′ | 64′ | |
| h | ′ | ′ | ′ | ′ | ′ | ′ | ′ | ′ | h |
| 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 0·0 | 24·0 |
| 0·8 | 0·1 | 0·1 | 0·2 | 0·2 | 0·3 | 0·4 | 0·4 | 0·5 | 23·2 |
| 1·6 | 0·1 | 0·2 | 0·4 | 0·5 | 0·6 | 0·7 | 0·9 | 1·0 | 22·4 |
| 2·5 | 0·2 | 0·4 | 0·6 | 0·7 | 0·9 | 1·1 | 1·3 | 1·5 | 21·5 |
| 3·5 | 0·2 | 0·5 | 0·7 | 1·0 | 1·2 | 1·5 | 1·7 | 2·0 | 20·5 |
| 4·7 | 0·3 | 0·6 | 0·9 | 1·2 | 1·6 | 1·9 | 2·1 | 2·5 | 19·3 |
| 6·0 | 0·4 | 0·7 | 1·1 | 1·5 | 1 9 | 2·2 | 2·6 | 3·0 | 18·0 |
| 7·8 | 0·4 | 0·9 | 1·3 | 1·7 | 2 2 | 2·6 | 3·1 | 3·5 | 16·2 |
| 12·0 | 0·5 | 1·0 | 1·5 | 2·0 | 2·5 | 3·0 | 3·5 | 4·0 | 12·0 |

**Example**—Calculation of Tithi for Jan. 26, 1972

| For 5-30 A.M. on | Jan. 25 | Jan. 26 | Jan. 27 | Jan. 28 |
|---|---|---|---|---|
| | s ° ′ | s ° ′ | s ° ′ | s ° ′ |
| Moon ... ... | 1 1 42 | 1 15 44 | 1 29 38 | 2 13 21 |
| Sun ... ... | 9 10 39 | 9 11 40 | 9 12 41 | 9 13 41 |
| $T$=Moon−Sun | 3 21 3 | 4 4 4 | 4 16 57 | 4 29 40 |

Daily motion $l=13°\ 01'$ $m=12°\ 53'$ $n=12°\ 43'$

On 26th $T=4s\ 4°\ 4'$ ∴ Tithi = S 11

Residue of this tithi = 4s 12° 0′ − 4s 4° 4′ = 7° 56′ = 7°·93

Daily motion $m=12°\ 53'$ ( ∴ Multiplier from table on prepage = 1·863 ) and $n-l=-18'$

∴ Time-interval = 7·93 × 1·863 = 14·77$h$ = 14$h$ 46·2$m$

∴ Ending moment of S 11 = 5-30+14-46·2 = 20$h$ 16·2$m$. I.S.T.

From interpolation : Corr. in arc = −1·0 ∴ Corr. in time = −1·0 × 1·9 = −1·9$m$.

∴ Final time = 20$h$ 16·2$m$ − 1·9$m$ = 20$h$ 14·3$m$ I.S.T. ( N.A. 20-14·2 )

The ending moment of Nakshatra and Yoga can also be calculated in a similar way.

# APPENDIX

## The Calendar

The English Calendar or the so called Christian Calendar is the original Roman Calendar as standardised by Julius Cæsar in 46 B.C. and subsequently reformed by Pope Gregory XIII in 1582 A.D. In the calendar introduced by Julius Cæsar ( known as Julian Calendar ) all the years including the century years which are divisible by 4 are leap-years having 29 days in February. This gives the length of the year as 365·25 days which is in excess of the correct length (365·2422) by ·0078 days, and this error continued to accumulate with lapse of time necessitating a revision of the calendar. As a result Pope Gregory XIII in 1582 revised the calendar by omitting the accumulated portion, which had amounted to 10 days by that time, from the month of October ( Oct. 5 to Oct. 14 ) ordaining that Thursday Oct. 4 was to be followed by Friday Oct. 15 of that year. The leap-year rule was also revised making the century years 1700, 1800, 1900 and then 2100, 2200, etc. as non-leap or common years with 28 days for February, and 1600, 2000, 2400, etc., which are divisible by 400 as leap-years with February having 29 days. In this way the average year-length of the calendar was brought down to 365·2425 days, the residuary excess being only one day in 3300 years. This revised calendar is known as the Gregorian Calendar, and all scientific and historical records from Oct. 15, 1582 onwards are now expressed or maintained in terms of this calendar and those of all earlier periods by the Julian Calendar.*

The Gregorian reformation was at once adopted by the Catholic states of Europe, but other countries took longer time to accept it, the latest date of adoption being 1927 for Turkey. In Great Britain it was officially introduced as late as in 1752 by taking away the error, which had amounted to 11 days by that time, from the month of September ( Sept. 3 to Sept. 13 ) and making Wednesday Sept. 2 followed by Thursday Sept. 14, 1752. The Julian Calendar that was used up to Sept. 2 of this year was designated as O.S. ( old style calendar ) and the Gregorian Calendar used from Sept. 14 as N.S. (new style calendar). The British people in India also followed this practice in recording historical events and dating of their documents during this period.

The calendar used for planetary positions, transit times, etc. given in this book is as usual the Gregorian Calendar. This calendar maintains a constant difference of 13 days with the Julian Calendar during the period from March 1, 1900 to Feb. 28, 2100 A.D. The calendar of this period may be taken as the **Standard Calendar**, and if necessary may be extended both ways to other centuries also for the facility of

*In this Calendar there is no such year as 0 A.D. or 0 B.C., the year that precedes 1 A.D. having been termed as 1 B.C. In astronomical reckoning, however, 1 B.C. is taken as 0 A.D. (a leap-year), 2 B.C. as -1 A.D., 3 B.C. as -2 A.D., 4 B.C. as -3 A.D., 5 B.C. as -4 A.D. ( a leap-year ) and so on.

application of different periodic variations without any difficulty. In the Standard Calendar all century years are leap-years having 29 days for February and as such there are 100 leap-year days in 4 centuries as in the Julian Calendar, while there are 97 such days in the Gregorian Calendar.

The dates arrived at in other centuries by application of the motion for 100 years etc. are the dates of the above Standard Calendar, from which the corresponding dates of the Gregorian or the Julian Calendar that was current at that time may be obtained by the corrections given below.

From a given date of the Gregorian Calendar or the old style calendar ( the Julian ) the corresponding date of the Standard Calendar may also be obtained by inverse application of these corrections.

| From a date of Standard Calendar | To the corresponding date of Gregorian Calendar (or N.S.) | Julian Calend. |
|---|---|---|
| All earlier years to Oct. 17, 1582 | — — — | -13 d. |
| Oct. 18, 1582 to Mar. 2, 1700* | -3 days (Oct. 15, 1582 to Feb. 28, 1700) | -13 " |
| Mar. 3, 1700 " " 1, 1800* | -2 days (Mar. 1, 1700 " " 28, 1800) | -13 " |
| " 2, 1800 " Feb. 29, 1900* | -1 day (Mar. 1, 1800 " " 28, 1900) | -13 " |
| " 1, 1900 " " 28, 2100* | 0 (Mar. 1, 1900 " " 28, 2100) | -13 " |
| Feb. 29, 2100 " " 27, 2200* | +1 day (Mar. 1, 2100 " " 28, 2200) | -13 " |
| " 28, 2200 " " 26, 2300* | +2 days (Mar. 1, 2200 " " 28, 2300) | -13 " |
| " 27, 2300 " " 25, 2500* | +3 days (Mar. 1, 2300 " " 28, 2500) | -13 " |

* In these century years February has 29 days in the Standard Calendar and 28 days in the Gregorian Calendar.

## Construction of the Tables and their use in other Centuries

The planetary positions and other elements given for the period 1951 to 2050 A.D. may be utilised in determining the positions for other centuries also. In this case the elements will be obtained for dates of the Standard Calendar ; these dates may then be converted into the corresponding dates of the Gregorian or the Julian Calendar as the case may be.

**Weekday**—The weekdays recur regularly after a period of 28 years in the Standard Calendar. Some multiples of this period are 84, 112, 196, 224, 280, 308, 392, 420, 476, 504, etc. By addition or subtraction of a suitable multiple to and from the given year ( the given date being first reduced to the date of the Standard Calendar ) a similar year in the period 1951 to 2050 is obtained, the weekdays of which are the same as those of the given year.

**Ayanamsa**—The ayanamsa is based on the Chitrā-paksha and its value is the same as used in the *Indian Ephemeris and Nautical Almanac*, and is less by 5″·8 than that adopted in LAHIRI'S *Tables of the Sun*.

**Longitude of Sun**—The *Nirayana* longitude of mean Sun is corrected by the equation of centre for the year and is affected by aberration ( $-20''\cdot5$ ), but it does not take into account the long period term ( about $-6''\cdot6$ ), lunar inequality ( $\pm6''\cdot4$ ), planetary perturbations ( $\pm20''$ ) and reduction from E.T. to U.T. (about $+2''$). The apparent nirayana longitude of the Sun so obtained has been termed as True Sun.

The variations of the longitude of Sun for different periods as applicable to the figures for any year given in this book are stated below. For earlier years the variations are to be applied inversely, *i.e.* with a positive sign and the True Sun thus obtained would be for the zero-date of the Standard Calendar of that year.

VARIATIONS IN

| | 4 years | 100 yrs. | 200 yrs. | 300 yrs. | 400 yrs. | 500 yrs. |
|---|---|---|---|---|---|---|
| Jan. 0 | −1·58′ | −40′ | −1° 19′ | −1° 59′ | −2° 38′ | −3° 18′ |
| Feb. 0 | −1·58 | −39 | −1 19 | −1 58 | −2 38 | −3 17 |
| Mar. 0 | −1·56 | −39 | −1 18 | −1 57 | −2 36 | −3 15 |
| Apr. 0 | −1·52 | −38 | −1 16 | −1 54 | −2 32 | −3 10 |
| May 0 | −1·48 | −37 | −1 14 | −1 51 | −2 28 | −3 05 |
| June 0 | −1·45 | −36 | −1 12 | −1 49 | −2 25 | −3 01 |
| July 0 | −1·43 | −36 | −1 12 | −1 47 | −2 23 | −2 59 |
| Aug. 0 | −1·43 | −36 | −1 12 | −1 47 | −2 23 | −2 59 |
| Sept. 0 | −1·45 | −36 | −1 13 | −1 49 | −2 25 | −3 02 |
| Oct. 0 | −1·49 | −37 | −1 14 | −1 52 | −2 29 | −3 06 |
| Nov. 0 | −1·53 | −38 | −1 16 | −1 55 | −2 33 | −3 11 |
| Dec. 0 | −1·56 | −39 | −1 18 | −1 57 | −2 36 | −3 15 |

**Moon**—In deriving the nirayana mean longitude of Moon a constant correction of $+20''\cdot0$ for reduction from E.T. to U.T. has been applied, but corrections on this account in Anomaly and Tithi have been ignored.

The variations of Mean Moon and of the two arguments are given below for certain periods, by the application of which the corresponding figures for other epochs may be obtained as in the case of the Sun.

| Motion in | Mean Moon | Moon's Anomaly | Tithi | Rahu |
|---|---|---|---|---|
| 1 day | 0s 13° 10′·581 | 1·089 | 1·0159 | − 0s 0°·05 |
| 365 days | 4 9 22·247 | 7·393 | 10·8019 | − 0 19·34 |
| 4 years | 5 20 39·567 | 0·663 | 14·2237 | − 2 17·42 |
| 100 years | 10 6 29 | 16·57 | 25·593 | − 4 15·5 |
| 200 " | 8 12 59 | 3·14 | 21·186 | − 9 1·1 |
| 300 " | 6 19 28 | 19·71 | 16·779 | − 1 16·6 |
| 400 " | 4 25 57 | 6·28 | 12·371 | − 6 2·1 |
| 500 " | 3 2 26 | 22·85 | 7·964 | −10 17·7 |

For earlier years the figures for centuries are as usual to be subtracted from those of the adopted year remembering that the period of Anomaly and Tithi is 30.

For finding the longitude of True Moon from the value of Mean Moon, the following arguments are necessary for determining the values of different corrections.

$A$ = Mean Anomaly of Moon ; $T$ = Mean Tithi ;

$g$ = Sun's mean anomaly ; $F$ = Mean Moon − Rahu.

Of these the values of $A$ and $T$ are given in the book in units of 12 degrees, $F$ can be obtained by subtraction, and the value of $g$ is $0^\circ$ on Jan 3, $90^\circ$ on April 4, $180^\circ$ on July 1, $270^\circ$ on Oct. 4 and $360^\circ$ on Dec. 31. Then—

True Moon = Mean Moon + $377''3 \sin A + 12''8 \sin 2A + 0''6 \sin 3A$ (Tab. I—Equation of centre)

$+76''4 \sin(2T-A) + 0''5 \sin(4T-2A)$ (Tab. III—Evection)

$-2''1 \sin T + 39''5 \sin 2T + 0''2 \sin 4T$ (Tab. II—Variation)

$-11''1 \sin g - 0''1 \sin 2g$ (Tab. IV—Annual Equation)

$-6''9 \sin 2F$ (Tab. V—Reduction)

For the purpose of simplification of work, smaller terms have not been taken into account. To help the inquisitive readers a few of such terms are given below :—

$+3''5 \sin(2T-2A) + 3''4 \sin(2T-A-g) + 3''2 \sin(2T+A)$

$+2''8 \sin(2T-g) + 2''5 \sin(A-g) - 1''8 \sin(A+g)$

**Mercury and Venus** – The 'Days from conjunction' given for the inferior planets are measured from the last mean superior conjunction of the planet with the sun. The mean daily motion of 'Planet *minus* Sun' is $3^\circ$·10673 for Mercury and $0^\circ$·61652 for Venus giving their synodic periods as 115·8775 and 583·9214 days respectively. The days from conj. multiplied by the above relative motions give the mean planet *minus* mean sun for the day which is known as Sighra Kendra or mean Sighra anomaly in Hindu Astronomy.

The variations of the argument 'Days from Conjunction' are given below for certain periods as in the case of the moon. While subtracting the century variations from the figures for the adopted year to get those for the corresponding dates (of Standard Calendar) of earlier centuries, it may in some cases be necessary first to add the period of the planet to the figure to facilitate subtraction.

| | Mercury<br>d | Venus<br>d |
|---|---|---|
| Period of the planet | 115·88 | 583·92 |
| Increase of the argument in – 4 years | 70·47 | 293·16 |
| 100 " | 23·6 | 321·9 |
| 200 " | 47·2 | 59·8 |
| 300 " | 70·8 | 381·7 |
| 400 " | 94·4 | 119·7 |
| 500 " | 2·1 | 441·5 |

For the calculation of the geocentric longitude of Mercury there is given a detailed method as well as a short method. In both the methods there is use of the English dates which are usable only for the present century being determined on the basis of the nirayana longitude of the Sun. While using these tables in other centuries the dates given in the book should be revised in the following way so that the tables may be used with the new dates taking them for the Standard Calendar of the year in question.

| For yrs. | 1414-1572 | 1573-1730 | 1731-1888 | 2046-2204 |
|---|---|---|---|---|
| Corr. to date | −3 days | −2 days | −1 day | +1 day |

The different items included in the tables for Mercury are detailed below for information of the interested readers.

$a$=Mean Sun − perihelion of the planet in units of 3°·1067.

$A_1$ = Equation of centre of Sun with the sign reversed expressed in the same unit.

$B_1$ = log 10 $R$ ( of Sun ) − ·992,7

$A_0$ − Mean planet − Mean Sun.

$A_0+a$=Mean anomaly of the planet.

$A_2$=Equation of centre of Mercury including Reduction to the ecliptic expressed in the same unit.

$B_2$= ·992,7 − log 10 $r$ ( of Mercury as reduced to ecliptic ).

$A=A_0+A_1+A_2$ is the heliocentric true longitude of Mercury *minus* true Sun i.e., true Sighra anomaly.

$B=B_1+B_2$=log $R$ − log $r$

In the short method table the date starts from June 8 in case of Mercury when the True Sun passes through perihelion of the planet. For Venus however it starts from Jan. 1, when the mean Sun is nearly equal to the solar perigee. The detailed method tables have not been given in case of Venus.

**Superior Planets**—The longitude of superior planets and of Rahu in other centuries may be obtained from those given for the years 1951 to 2050 by application of the respective periods. For this purpose first convert the given date into the corresponding date of the Standard Calendar where necessary. Then take a suitable period from the following table and apply the same to this date ( *add* or *subtract* as necessary ) in order to arrive at a date within the span of the tables.

The longitude of the planet for this latter date as obtained from the Ephemeris and corrected by *inverse* application of the degree-correction given in the table below is the required longitude of the planet for the date in question.

## Periods of Planets

( The degree-correction is the increase of the nirayana longitude after the given period )

| Mars | | Jupiter | | Saturn | | Herschel | | Rahu | |
|---|---|---|---|---|---|---|---|---|---|
| yr. | deg. | yr. | deg. | yr. | deg. | yr. | deg. | yr. | deg. |
| 79 | +0°·8 | 83 | −1°·0 | 59 | +1°·1 | 84 | −0°·1 | 93 | −0°·0 |
| 158 | +1·7 | 166 | −2·0 | 118 | +2·1 | 168 | −0·2 | 186 | −0·1 |
| 205 | −2·3 | 178 | +2·1 | 177 | +3·2 | 252 | −0·3 | 279 | −0·1 |
| 284 | −1·5 | 261 | +1·1 | 206 | −2·3 | 336 | −0·4 | 372 | −0·2 |
| 363 | −0·7 | 344 | +0·1 | 265 | −1·2 | 420 | −0·5 | 465 | −0·2 |
| 442 | +0·1 | 427 | −0·9 | 324 | −0·1 | 504 | −0·6 | 558 | −0·3 |
| 521 | +0·9 | 510 | −1·9 | 383 | +1·0 | | | | |
| | | | | 442 | +2·1 | | | | |
| | | | | 501 | +3·0 | | | | |

For Neptune : 82 yr. +180°·2, 165 yr. +0°·5, 247 yr. +180°·7
330 yr. +1°·0, 412 yr. +181°·2, 494 yr. +0°·3

As regards *Pluto*, the period of sidereal revolution of the planet is 248·4 years after which the nirayana longitude recurs. The sub-periods do not however give correct result in this case.

## Example

*Find the longitudes of planets for 1486 A.D. Feb. 18, 17-30 I.S.T.*

( Birth of H. H. Sri Chaitanya at Nabadwip )

Saka 1407, Phalguni Purnima evening.

A lunar eclipse started shortly after His birth.

Apparently the above date is of the Julian Calendar, from which the Standard Calendar date is obtained as March 3 ( by addition of 13 days ), 1486 A.D.

*Ayanamsa and Weekday*—The value of Chitrā-paksha ayanamsa for 1486 is obtained from p. 52 as 16°41′. For weekday we add 504 to the given year and get 1990 A.D., a similar year for weekdays, from which the weekday for the given date. *i.e.*, Mar. 3 is obtained as Saturday.

*Sun*—For 1986. Mar. 3, 17-30 I.S.T., the longitude of Sun is $10^{s}\,18^{\circ}\,56'$. Applying $+3^{\circ}17'$ as variation for $-500$ years, the nirayana longitude of Sun for the epoch is obtained as $10^{s}\,22^{\circ}\,13'$ ( Sayana longitude is however $338^{\circ}\,54'$ ).

*Moon*—From 1986, Mar. 3, 17-30 I.S.T. (pp. 18, 55–60) arrive at the same date of 1486.

| | Mean Moon | | | Anomaly | Tithi | Rahu | |
|---|---|---|---|---|---|---|---|
| | s | ° | ′ | | | s | ° |
| 1986, Mar. 0 | 6 | 1 | 23 | 27·07 | 18·960 | 0 | 9·1 |
| 3d | 1 | 9 | 32 | 3·27 | 3·048 | (–) | 0·2 |
| 12h | 0 | 6 | 35 | 0·54 | 0·508 | | |
| | 7 | 17 | 30 | 0·88 | 22·516 | 0 | 8·9 |
| –500 yrs. | –3 | 2 | 26 | –22·85 | –7·964 | +10 | 17·7 |
| 1486, Mar. 3, 17-30 | 4 | 15 | 4 | 8·03 | 14·552 | 10 | 26·6 |
| Corr. I | + | 6 | 12 | | | | |
| ,, II | – | 0 | 8 | | | | |
| ,, III | – | 1 | 12 | | | | |
| ,, IV | – | 0 | 9 | | | | |
| ,, V | + | 0 | 2 | | | | |
| ∴ True Moon | 4 | 19 | 49 | | | | |

Moon – Sun = 5s 27° 36′.

So tithi is Purnima which is to end about h. 4-48 (2 × 2-24) after h. 17-30. This is Phalguni Purnima.

On this day Sun – Rahu *i. e.* $K$ = –4°·4 and F. M. = h. 22-12 I. S. T. From pp. 93-94 we get $m$ = 1·00. ∴ $K\,m$ = 4°·4. So there is a total lunar eclipse in the evening. Middle of eclipse as obtained from F. M. is h. 22-16 and half duration is 103 min. ∴ Eclipse begins at h. 20-33 I. S. T. (Oppolzer 20-33).

For *Mercury* and *Venus* obtain 'Days from Conjunction' (p. 18).

| | Mercury | Venus |
|---|---|---|
| | d | d |
| 1986, Mar. 3, 17-30 | 37·5 | 43·6 |
| –500 years | –2·1 | –441·5 |
| 1486 same date | 35·4 | 186·0 |

For calculation of elongation of these planets use along with the above the date as Mar. 3 *minus* 3 = Mar. 0.

| | | | | | |
|---|---|---|---|---|---|
| | s | ° | s | ° |
| True Sun ... | 10 | 22·2 | 10 | 22·2 |
| Elongation ... | | +18·2 | | +43·0 |
| ∴ Longitude ... | 11 | 10·4 | 0 | 5·2 |
| | (11 | 10) | (0 | 5) |

For *Superior Planets* the longitude is to be obtained by using the respective similar years by applying the periods from p. 112.

| | Mars | Jupiter | Saturn | Herschel | Rahu |
|---|---|---|---|---|---|
| Given year | 1486 | 1486 | 1486 | 1486 | 1486 |
| Corr. for similar year | +521 | +510 | +501 | +504 | +465 |
| Similar year | 2007 | 1996 | 1987 | 1990 | 1951 |
| Long. for Mar. 3·5 | 9s 10°·0 | 8s 18·5 | 7s 26°·7 | 8s 15°·2 | 10s 26°·4 |
| Deg.-corr. | –0·9 | +1·9 | –3·0 | +0·6 | +0·2 |
| Longitude | 9 9·1 | 8 20·4 | 7 23·7 | 8 15·8 | 10 26·6 |
| | (9 10) | (8 20) | (7 24) | | |

**Transit of Sun**—The dates of transit obtained in other centuries by application of the century variations given in the book are of the Standard Calendar. The time obtained need some further small correction as given below. In the case of Siddhantic calculation, however, no such additional correction is necessary. The given corrections are to be applied inversely for earlier centuries as usual.

| *Rasi* | 100 yrs. | 500 yrs. | *Sign* | 100 yrs. | 500 yrs. |
|---|---|---|---|---|---|
| | h | h | | h | h |
| Makara | +0·28 | +1·4 | Aquarius | +1·35 | +6·7 |
| Kumbha | +0·27 | +1·3 | Pisces | +1·03 | +5·1 |
| Mina | +0·20 | +1·0 | Aries | +0·42 | +2·1 |
| Mesha | +0·07 | +0·3 | Taurus | −0·30 | −1·5 |
| Vrisha | −0·09 | −0·4 | Gemini | −0·96 | −4·8 |
| Mithuna | −0·21 | −1·0 | Cancer | −1·36 | −6·8 |
| Karkata | −0·28 | −1·4 | Leo | −1·38 | −6·9 |
| Simha | −0·27 | −1·3 | Virgo | −1·02 | −5·1 |
| Kanya | −0·19 | −1·0 | Libra | −0·39 | −1·9 |
| Tula | −0·06 | −0·3 | Scorpio | +0·33 | +1·6 |
| Vrischika | +0·08 | +0·4 | Sagittarius | +0.96 | +4·8 |
| Dhanus | +0·21 | +1·0 | Capricornus | +1·32 | +6·6 |

Calculation of the time of Sun's transit into Kumbha Rasi in 1486.

| | *Modern Nirayana* | | | *S. S. Calculation* | | |
|---|---|---|---|---|---|---|
| | | d | h | | d | h |
| 1954 ... ... | Feb. | 12 | 16·9 | Feb. | 12 | 16·8 |
| 1983-86 ... ... | | | +4·9 | | | +6·7 |
| 1986 ... ... | Feb. | 12 | 21·8 | Feb. | 12 | 23·5 |
| −500 yrs. ... ... | (−) | 3 | 4·4 | (−) | 4 | 9·1 |
| Further corr. ... | (−) | | 1·3 | (+) | | 0·2 |
| 1486 A.D. ... ... | Feb. | 9 | 16·1 I.S.T. | Feb. | 8 | 14·6 I.S.T. |

Hence Feb. 10 (Standard Calendar) of 1486 A.D. is the first day of solar Phalguna ( Bengal rule ) and March 3 is the 22nd day of Phalguna 1407 Saka. According to S. S. calendar the month begins one day earlier and so March 3 is Phalguna 23.

Calculation of Full Moon of March, 1486 A.D. (Standard Calendar).

| | | d | h | *A* |
|---|---|---|---|---|
| (Pp. 88-89) 1954, | Feb. | 3 | 10·9 | 24·80 |
| 1983-86 ... | | 6 | 2·7 | 11·96 |
| For Full Moon ... | | 14 | 18·4 | 16·08 |
| 1986 ... | Feb. | 24 | 8·0 | 22·84 |
| −500 yrs. ... | (+) | 7 | 20·2 | +15·68 |
| 1486 ... | Mar. | 4 | 4·2 | 8·52 |
| Corr. for *A* ... | | | −9·7 | |
| „ for date ... | (Mar. 1) | | +3·5 | |
| ∴ F. M. on 1486, | Mar. | 3 | 22·0 I.S.T. | |
| | | (3 | 22·2) | |

The calculations given above pertaining to the birth date of Sri Chaitanya Dev as for March 3 are actually for Feb. 18, 1486 A.D. ( Saturday ) of the Julian or old style calendar. This date is also Phalguna 23, 1407 Saka ( S. S. Calendar ).

## Longitudes of Planets by their Periods

The calculation of the longitudes of superior planets by their periods has been exemplified on page 113. Those for the Moon, Mercury and Venus are shown below.

**Moon**—(1) For Moon first consider the period of 1240 days which gives nearly a constant difference in longitude.

The period of 1240 days = 3 years 4 months and 23 days (± 1 day)
= 3 years and 5 complete lunar months.

The weekday increases by one during the period and tithi remains the same. The longitude of Moon increases by $4^s\ 18^\circ\ 41'$ after the period.

(2) The period of 4326 days also gives a nearly constant difference in the longitude of Moon.

The period of 4326 days = 12 years *less* 57 days
= 11 years 10 months and 4 days (± 1 day)

The weekday remains the same after the period but newmoon becomes fullmoon.

The nirayana longitude of Moon increases by $4^s\ 0^\circ\ 56'$ and the sayana longitude by $4^s\ 1^\circ\ 6'$ after the period.

**Example**—On Mar. 1, 1968 Friday, the nirayana longitude of Moon is $11^s\ 6^\circ\ 59'$ at 5-30 a.m. I.S.T. By adding $4^s\ 18^\circ\ 41'$ for 1240 days, we get the longitude for July 24, 1971 Saturday as $3^s\ 25^\circ\ 40'$. Again on Sept. 19, 1959 Saturday Moon is $11^s\ 24^\circ\ 57'$. By adding $4^s\ 0^\circ\ 56'$ for 4326 days we get the longitude for the above date of 1971 as $3^s\ 25^\circ\ 53'$. The actual longitude on this date is however $3^s\ 25^\circ\ 43'$.

**Mercury**—For this planet the period of 13 years or more correctly 4751 days may be utilised.

The period of 4751 days = 13 years *plus* 2 or 3 days during which the weekday *increases* by 5 or *decreases* by 2.

The longitude of Mercury increases by the following amounts during this period.

| | | | | |
|---|---|---|---|---|
| Nirayana | 1st Jan. | $+2^\circ\ 43'$ | 1st July | $+2^\circ\ 33'$ |
| Sayana | ,, | +2 54 | ,, | +2 44 |

*N. B.* In all the above methods the corresponding date found by application of the period to the initial year should be checked up by weekdays of the two epochs to ensure correctness.

**Venus**—For Venus the period of 8 years *less* 2 days may very conveniently be used. After this period the weekday increases by one and the longitude of Venus by the following amounts :

| | Jan. 1 | Apr. 1, Oct. 1 | July 1 |
|---|---|---|---|
| Nirayana | −2° 06′ | −2° 01′ | −1° 57′ |
| Sayana | −1° 59′ | −1° 55′ | −1° 51′ |

When the daily motion of the planet is different from the normal motion of 59′, then the following further correction is necessary.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Motion | 1°15′ | 0°59′ | 0°38′ | 0°15′ | 0° 0′ | (−) 0° 22′ | (−) 0° 38′ |
| Correction | +6′ | 0 | −8′ | −17′ | −23′ | −32′ | −38′ |

The error in this method is found to be limited to 2 or 3 mins. only in case of the latter planet. For example, the longitude of Venus on May 3, 1961 is $11^s$ 19° 26′ and the daily motion is +0° 3′. Hence the two corrections are −1°59′ and −22′, totalling −2°21′. Applying this correction to the above figure for 1961 we get the longitude for May 1, 1969 as $11^s$ 17° 5′ ( I.E. $11^s$ 17° 6′ ).

***FINIS***

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